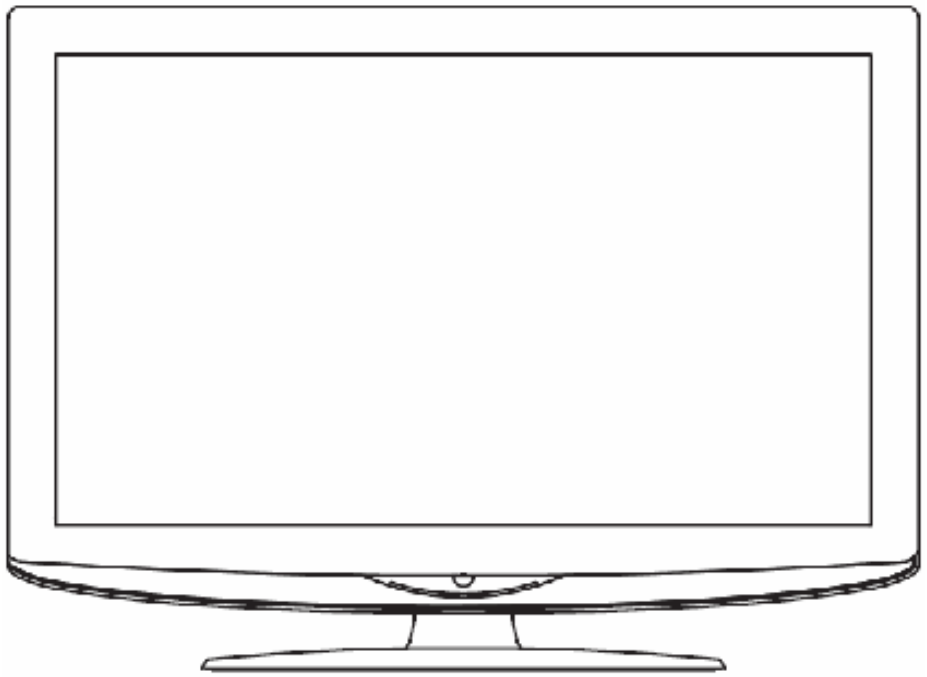

Acer AT2230 & AT2231
Service Guide

Service Guide Version and Revision

Version	Date	Revision History	TPV Model Name
A00	Jul.-23-08	Initial release	E228M3NBWAZANN
A01	Aug.-03-08	Add FRU List	E228M3NBWAZANN

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Conventions

The following conventions are used in this manual:

Screen messages	Denotes actual messages that appear on screen.
NOTE	Gives bits and pieces of additional information related to the current topic.
WARNING	Alerts you to any damage that might result from doing or not doing specific actions.
CAUTION	Gives precautionary measures to avoid possible hardware or software problems.
IMPORTANT	Remind you to do specific actions relevant to the accomplishment of procedures.

Preface

Before using this information and the product it supports, please read the following general information.

1. This Service Guide provides you with all technical information relating to the BASIC CONFIGURATION decided for Acer's "global" product offering. To better fit local market requirements and enhance product competitiveness, your regional office may have decided to extend the functionality of a machine (e.g. add-on card, modem, or extra memory capability). These LOCALIZED FEATURES will NOT be covered in this generic service guide. In such cases, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.

2. Please note WHEN ORDERING FRU PARTS, that you should check the most up-to-date information available on your regional web or channel. If, for whatever reason, a part number change is made, it will not be noted in the printed Service Guide. For ACER-AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code to those given in the FRU list of this printed Service Guide. You MUST use the list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

Warning: (For FCC Certified Models)

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.
3. The manufacturer is not responsible for any radio or TV interference caused by unauthorized modification to this equipment. It is the responsibility of the user to correct such interference.

As ENERGY STAR® Partner our company has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

Warning:

To prevent fire or shock hazard, do not expose the monitor to rain or moisture. Dangerous high voltages are present inside the monitor. Do not open the cabinet. Refer servicing to qualified personnel only.

Precautions

- Do not use the monitor near water, e.g. near a bathtub, washbowl, kitchen sink, laundry tub, swimming pool or in a wet basement.
- Do not place the monitor on an unstable trolley, stand, or table. If the monitor falls, it can injure a person and cause serious damage to the appliance. Use only a trolley or stand recommended by the manufacturer or sold with the monitor. If you mount the monitor on a wall or shelf, uses a mounting kit approved by the manufacturer and follow the kit instructions.
- Slots and openings in the back and bottom of the cabinet are provided for ventilation. To ensure reliable operation of the monitor and to protect it from overheating, be sure these openings are not blocked or covered. Do not place the monitor on a bed, sofa, rug, or similar surface. Do not place the monitor near or over a radiator or heat register. Do not place the monitor in a bookcase or cabinet unless proper ventilation is provided.
- The monitor should be operated only from the type of power source indicated on the label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- The monitor is equipped with a three-pronged grounded plug, a plug with a third (grounding) pin. This plug will fit only into a grounded power outlet as a safety feature. If your outlet does not accommodate the three-wire plug, have an electrician install the correct outlet, or use an adapter to ground the appliance safely. Do not defeat the safety purpose of the grounded plug.
- Unplug the unit during a lightning storm or when it will not be used for long periods of time. This will protect the monitor from damage due to power surges.
- Do not overload power strips and extension cords. Overloading can result in fire or electric shock.
- Never push any object into the slot on the monitor cabinet. It could short circuit parts causing a fire or electric shock. Never spill liquids on the monitor.
- Do not attempt to service the monitor yourself; opening or removing covers can expose you to dangerous voltages and other hazards. Please refer all servicing to qualified service personnel
- To ensure satisfactory operation, use the monitor only with UL listed computers which have appropriate configured receptacles marked between 100 - 240V AC, Min. 5A.
- The wall socket shall be installed near the equipment and shall be easily accessible.

Special Notes On LCD TV Monitors

The following symptoms are normal with LCD TV monitor and do not indicate a problem.

Notes

- Due to the nature of the fluorescent light, the screen may flicker during initial use. Turn off the Power Switch and then turn it on again to make sure the flicker disappears.
- You may find slightly uneven brightness on the screen depending on the desktop pattern you use.
- The LCD TV screen has effective pixels of 99.99% or more. It may include blemishes of 0.01% or less such as a missing pixel or a pixel lit all of the time.
- Due to the nature of the LCD TV screen, an afterimage of the previous screen may remain after switching the image, when the same image is displayed for hours. In this case, the screen is recovered slowly by changing the image or turning off the Power Switch for hours.

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General Specifications

Model	AT1930/AT1931	AT2230/AT2231
Panel spec		
Resolution (pixels)	1440 x 900	1680 x 1050
Brightness (tpe.)	300 nit	
Contrast Ratio (tpe.)	1000 : 1	
Dynamic Contrast Ratio (max.)	10000 : 1	15000 : 1
Display colour	16.7 M	
Viewing angle (tpe.)	H: 170° ; V:160°	
Response (tpe.)	5 ms (Gray to Gray)	
Power supply		
Input	100 to 240 V AC (50~60 Hz)	
Max. power consumption	50W	55 W
Power saving	<0.5 W	
Mechanical		
Dimensions (W x H x D mm)	446.15 x 358.5 x 144.44	511.65 x 400.02 x 144.44
Weight (kg)	4	5
Weight (lbs.)	8.8	11
Gross weight (Kg)	6	11
Gross weight (lbs)	13.2	16.5
Wall mounting	100mm x 100mm	
Analog TV system		
Colour system	PAL, SECAM	
Sound system	B/G/D/K/I/L	
Stereo system	NICAM/A2	
Subtitle	Teletext 1.5 (1000 pages)	

Terminal	
Analog Tuner In	Yes
SCART 1	CVBS(In/Out), RGB(In), Audio R/L
Component in	YPbPr, Audio (R/L)
AV-in	CVBS, Audio (R/L)
S Video	S Video, Audio (R/L)
HDMI 1	Yes (HDMI 1.2)
HDMI 2	Yes (HDMI 1.2)
PC D-sub in	Yes
PC audio-in	Yes
Headphone out	Yes
Resolution	
HDMI	480i/p, 576i/p, 720p, 1080i
Audio system	
Speakers	3W + 3W

LCD TV Description

The LCD TV will contain a main board, a power board a function keyboard and an IR board. The main board and power board will house the flat panel to control logic I^2C bus, DDC, brightness control logic for LCD panel, DC-DC conversion to supply the appropriate power to the whole board and transmitting TTL level signals into LCD Module to drive the LCD display circuit.

The inverter board will drive the five CCFLs (Cold Cathode Fluorescent Lamp).

The function keyboard and Remote Control will provide the OSD control signal to the Main Board.

Precautions And Notices

1-1 Assembly Precaution

(1) Please do not press or scratch LCD panel surface with anything hard. And do not soil LCD panel surface by touching with bare hands (Polarize film, surface of LCD panel is easy to be flawed)

In the LCD panel, the gap between two glass plates is kept perfectly even to maintain display characteristic and reliability. If this panel is subject to hard pressing, the following occurs :

(a) Uniform color (b) Orientation of liquid crystal becomes disorder

(2) Please wipe out LCD panel surface with absorbent cotton or soft cloth in case of it being soiled.

(3) Please wipe out drops of adhesive like saliva and water in LCD panel surface immediately.

They might damage to cause panel surface variation and color change.

(4) Do not apply any strong mechanical shock to the LCD panel.

1-2 Operating Precaution

(1) Please be sure to unplug the power cord before remove the back-cover. (be sure the power is turn-off)

(2) Please do not change variable resistance settings in MAIN-BOARD; they are adjusted to the most suitable value. If they are changed, it might happen LUMINANCE does not satisfy the white balance spec.

(3) Please consider that LCD backlight takes longer time to become stable of radiation characteristic in low temperature than in room temperature.

(4) Please pay attention to displaying the same pattern for very long-time. Image might stick on LCD.

1-3 Storage Precaution

(1) When you store LCD for a long time, it is recommended to keep the temperature between -20°C - 60°C without the exposure of sunlight and to keep the humidity less than 85% RH.

(2) Please do not leave the LCD in the environment of high humidity and high temperature such as 60°C, 95%RH.

(3) Please do not operate the LCD in the environment of abnormal temperature, below 0°C.

1- 4 High Voltage Warning

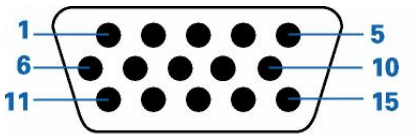
The high voltage was only generated by Power support part, if carelessly contacted the transformer on this module, can cause a serious shock.

D-SUB PIN Distribution

This procedure gives you instructions for installing and using the LCD TV display.

(1) Position the display on the desired operation and plug the power cord into a convenient AC outlet. Three-wire power cord must be shielded and is provided as a safety precaution as it connects the chassis and cabinet to the electrical conduct ground. If the AC outlet in your location does not have provisions for the grounded type plug, the installer should attach the proper adapter to ensure a safe ground potential.

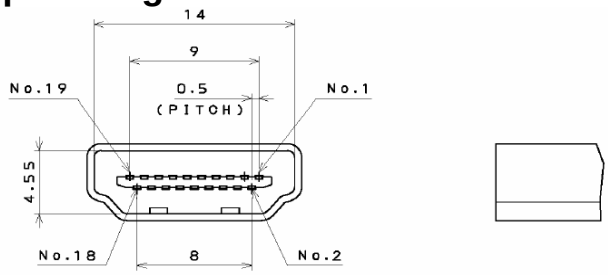
(2) Connect the 15-pin color display shielded signal cable to your signal system device and lock both screws on the connector to ensure firm grounding. The connector information is as follow:



15 - Pin Color Display Signal Cable

Pin NO.	Description	Pin NO.	Description
1	Red video input	9	DDC +3.3V (or 5V)
2	Green video input /SOG	10	Logic ground
3	Blue video input	11	GND
4	GND	12	Serial data line (SDA)
5	GND– cable detect	13	H. Sync / H+V
6	Red video ground	14	V. Sync
7	Green video ground	15	Data clock line (SCL)
8	Blue video ground		

HDMI Digital connector pin assignments



Pin No.	Description	Pin No.	Description
1	TMDS Data2+	2	TMDS Data2 Shield
3	TMDS Data2-	4	TMDS Data1+
5	TMDS Data1 Shield	6	TMDS Data1-
7	TMDS Data0+	8	TMDS Data0 Shield
9	TMDS Data0-	10	TMDS Clock+
11	TMDS Clock Shield	12	TMDS Clock-
13	CEC	14	NC
15	SCL	16	SDA
17	DDC/CEC Ground	18	+5V Power
19	Hot Plug Detect		

Factory Preset Display Modes:

Analog RGB Signal Timing

	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Standard
1	720 x 400	31.5	70.1	VGA
2	640 x 480	31.5	60.0	VGA
3	640 x 480	35.0	67.0	MAC
4	640 x 480	37.9	72.8	VESA
5	640 x 480	37.5	75.0	VESA
6	800 x 600	35.2	56.3	VESA
7	800 x 600	37.9	60.3	VESA
8	800 x 600	48.1	72.2	VESA
9	800 x 600	46.9	75.0	VESA
10	832 x 624	49.7	75.0	MAC
11	1024 x 768	48.4	60.0	VESA
12	1024 x 768	56.5	70.1	VESA
13	1024 x 768	60.0	75.0	VESA
14	1280 x 768		60.0	CVT 2.3MA
15	1280 x 768	60.3	75.0	CVT 2.3MA
16	1152 x 870	68.7	75.0	MAC
17	1152 x 864	63.9	70.0	VESA
18	1152 x 864	67.5	75.0	VESA
19	1280 x 960	60.0	60.0	VESA
20	1280 x 960	75.0	75.0	VESA
21	1280 x 1024	64.0	60.0	VESA
22	1280 x 1024	80.0	75.0	VESA
23	1440 x 900	55.9	59.9	VESA
24	1440 x 900	70.6	75.0	VESA
25	1680 x 1050	65.3	60.0	CVT 1.76MW

LCD TV Panel Specification

The M220Z1-L03 model is a 22 inch wide TFT-LCD module with a 4-CCFL Backlight Unit and a 30-pin 2ch-LVDS interface. This module supports 1680 x 1050 WSXGA+ (16:10 wide screen) mode and displays up to 16.7 millions colors. The inverter module for the Backlight Unit is not built in.

Panel Features

-Super wide viewing angle
- High contrast ratio
- Fast response time
- High color saturation (EBU Like Specifications)
- WSXGA+ (1680 x 1050 pixels) resolution
- DE (Data Enable) only mode
- LVDS (Low Voltage Differential Signaling) interface

General Specifications

Item	Specification	Unit
Diagonal size	558.68	mm
Active Area	473.76x296.1	mm
Bezel Opening Area	477.7 (H) x 300.1 (V)	mm
Driver Element	a-Si TFT active matrix	-
Pixel Number	1680 x R.G.B. x 1050	pixel
Pixel Pitch	0.282(H) x 0.282(V)	mm
Pixel Arrangement	RGB vertical stripe	-
Display Colors	16.7 millions	color
Transmissive Mode	Normally White	-
Surface Treatment	Hard coating (3H), AG (Haze 25%)	-

Mechanical Specification

Item		Min.	Typ.	Max.	Unit
Module Size	Horizontal(H)	493.2	493.7	494.2	mm
	Vertical(V)	319.6	320.1	320.6	mm
	Depth(D)	16	16.5	17	mm
Weight				2550	g
I/F connector mounting position		The mounting inclination of the connector makes the screen center within ±0.5 mm as the horizontal.			

Optical Specifications

Test Conditions

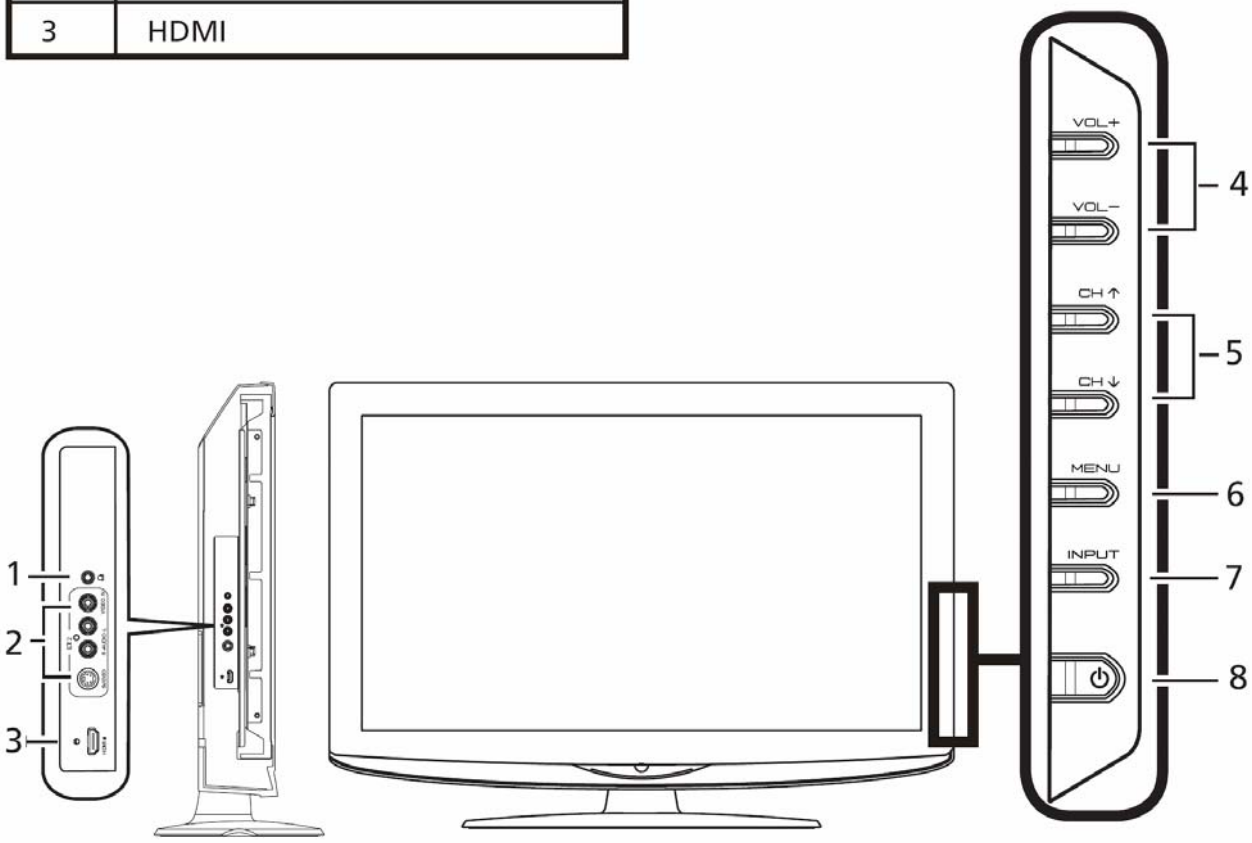
Item	Symbol	Value	Unit
Ambient Temperature	Ta	25±2	°C
Ambient Humidity	Ha	50±10	%RH
Supply Voltage	V_{CC}	5.0	V
Input Signal	According to typical value in "3. ELECTRICAL CHARACTERISTICS"		
Inverter Current	I_L	7.0	mA
Inverter Driving Frequency	F_L	61	KHz
Inverter	SUMIDA H05 5307		

Optical Specifications

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Color Chromaticity	Red	Rx	θ_x=0°, θ_Y =0° CS-1000T R=G=B=255 Grayscale	Typ – 0.03	0.649	Typ + 0.03	
		Ry			0.335		
	Green	Gx			0.283		
		Gy			0.605		
	Blue	Bx			0.151		
		By			0.073		
	White	Wx			0.313		
		Wy			0.329		
Center Luminance of White		L_C		250	300	---	cd/m^2
Contrast Ratio		CR		700	1000	---	-
Response Time		T_R	θ_x=0°, θ_Y =0°	---	1.3	2.2	ms
		T_F		---	3.7	5.8	ms
White Variation		δW	θ_x=0°, θ_Y =0°	---	1.3	1.42	-
Viewing Angle	Horizontal	θ_x+	CR>10	75	85	---	Deg.
		θ_x-		75	85	---	
	Vertical	θ_Y+		70	80	---	
		θ_Y-		70	80	---	

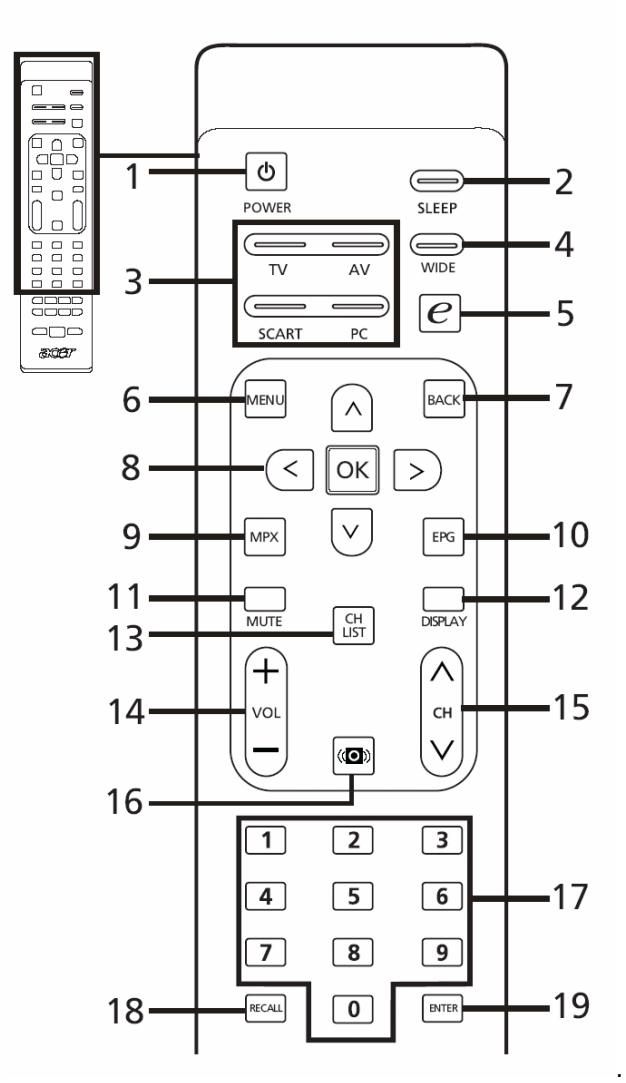
Front panel controls

Front panel view	
1	Earphone
2	AV in-S-video, CVBS, Audio L/R
3	HDMI



4	VOL+	Volume up	When the OSD is on, functions the same as the Right arrow.
	VOL–	Volume down	When the OSD is on, functions the same as the Left arrow.
5	CH↑	Channel up	When the OSD is on, functions the same as the Up arrow.
	CH↓	Channel down	When the OSD is on, functions the same as the Down arrow.
6	MENU	Menu key	Turns the OSD menu ON and OFF.
7	INPUT	Input key	Press to change input source. When the OSD is on, press this button to confirm selection.
8	⏻	Power On/ Off	Turns the power ON and OFF.

Using the Remote Control



1 POWER

Press to turn your TV on/off.

2 SLEEP

Press to set a time period after which the TV will switch itself to standby (5, 0, 5, 20, 25 ... 80 minutes).

3 Input buttons (TV/AV/SCART/PC)

Press to select correct input mode.

4 WIDE

Press to toggle scaling mode between Super zoom, 4:3, 4:9, 6: 0, 6: 0 subtitle, Full screen and Wide detect modes.

5 e (Empowering Technology)

Press to activate and select the scenario mode. See page 9.

6 MENU

Press to open or close the Menu.

7 Back

Press to back to previous Menu.

8 Directional keys/OK

9 MPX

Press to select the audio type, displayed in the top right-hand corner (mono, stereo, bilingual).

10 EPG (No function for these models)

11 MUTE

Press to toggle audio on and off.

12 DISPLAY

Press to display or change input/ channel information (dependent on input/source type).

13 CH LIST

Press to launch the channel/program list.

14 VOL (+/-)

Press to increase or decrease the volume.

15 CH (up/down)

Press to sequentially select the TV channel.

16 Audio effects

Press to turn audio mode to Surround mode.

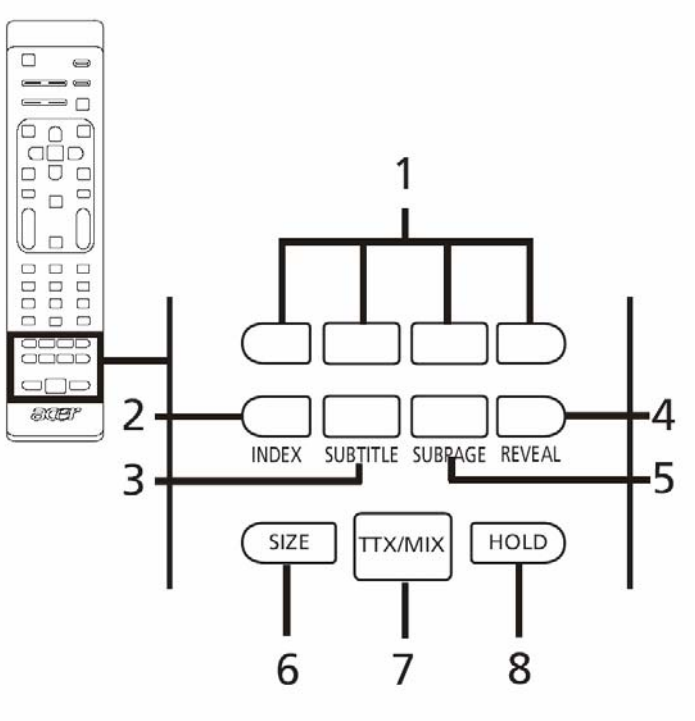
17 Number keys.

18 RECALL

Press to return to the previous channel.

19 ENTER (No function for these models)

Teletext



1 Colour buttons (R/G/Y/B)

Operates corresponding button on the teletext page.

2 INDEX

Press to go to the index page.

3 SUBTITLE

Press to view subtitles on the screen.

4 REVEAL

Press to reveal hidden teltext information.

5 SUBPAGE

Press to access the teletext's subpages directly.

6 SIZE

Press once to zoom teletext page to 2X. Press again to resume.

You can also use navigation key (up and down) to zoom-in or zoom-out the teletext page.

7 TTX/MIX (TELETEXT/MIX)

Press to switch from TV/AV to Teletext mode.

Press to overlay teletext page on the TV image.

8 HOLD

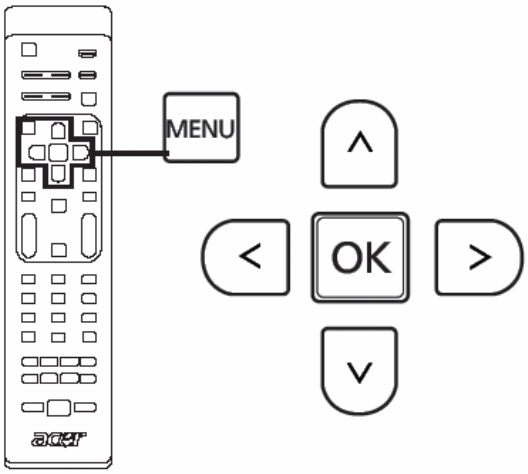
Press to pause the current teletext page in multi-page viewing mode.

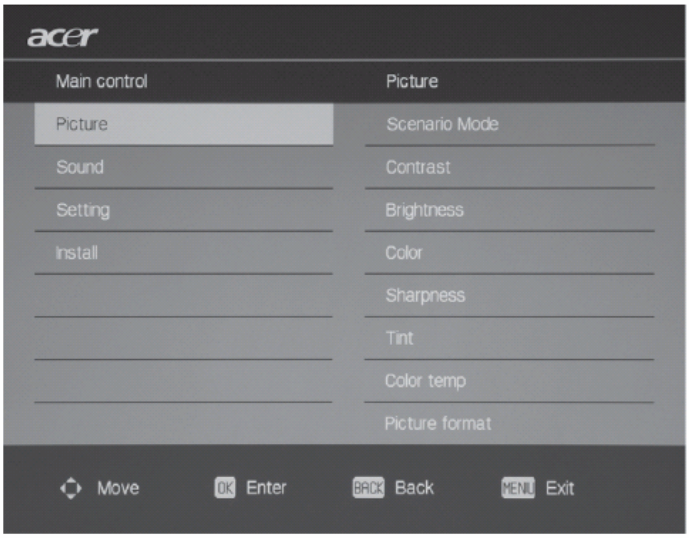
Using the OSD Menus

Many of the advanced settings and adjustments are available through using the OSD (onscreen display) menus, as shown in the example screenshot below.

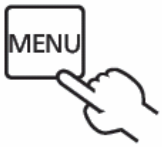
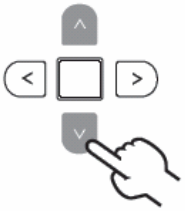
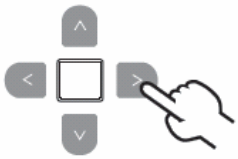
Basic operations required to navigate these menus (Picture, Sound, Setting and Install) are described in this section.

Navigating the OSD with the remote control





You can also interact with these menus using the right panel controls. Please see "Front panel view" on page 7 for details.

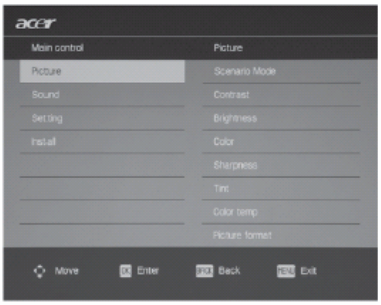
There are four main OSD menus. These are: Picture, Sound, Setting and Install. Use the following method to navigate these menus.		
1		Press the **MENU** button on the remote control or the **MENU** button on the control panel.
2		Select your desired menu by using the up and down **directional keys** to switch between the five menus.
3		Use the **directional keys** to interact with the menu. The up / down directions will scroll through the menu options, while left/right will adjust the different settings (for example, in the Picture menu, settings such as brightness, contrast, etc.). Press **MENU** to exit.

Adjusting the OSD settings

The OSD can be used for adjusting the settings of your LCD TV.

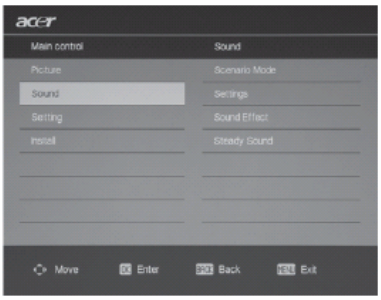
Press the **MENU** key to open the OSD. You can use the OSD to adjust the picture quality, audio settings, channel settings and general settings. For advanced settings, please refer to following page:

Adjusting the picture quality



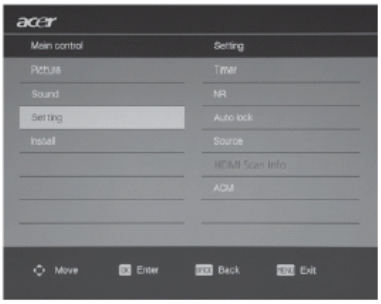
1. Press the **MENU** key to bring up the OSD.
2. Using the directional keys, select **Picture** from the OSD. Then navigate to the picture element you wish to adjust.
3. Use the up or down keys to adjust the sliding scales.
4. The **Picture** menu can be used to adjust the current **Picture mode**, **Brightness**, **Contrast**, **Colour**, **Sharpness** and other image-related qualities.

Adjusting the audio settings



1. Press the **MENU** key to bring up the OSD.
2. Using the directional keys, select **Sound** from the onscreen display. Then navigate to the feature you wish to adjust.
3. Use the up or down keys to adjust the sliding scale. Press **OK** to save.
4. The **Sound** menu can also be used to adjust the the current **Sound Mode**, **Treble**, **Bass**, **Balance**, **Steady Sound**, **Sound Effect** and other important sound-related settings.

Adjusting the settings



1. Press the **MENU** key to bring up the OSD.
2. Using the directional keys, select **Setting** from the OSD. Then navigate to the feature you wish to adjust.
3. The **Setting** menu can be used to adjust the **Timer**, **NR**, **Auto lock**, **ACM** and other important settings.

Adjusting the Installation settings

1. Press the **MENU** key to bring up the OSD.
2. Using the directional keys, select **Install** from the OSD.
3. Use the directional keys to navigate the menus.
4. The **Install** menu can be used to adjust **Menu Language**, **Country**, **Auto Scan**, **Manual Scan**, **Channel setting** and other important Installation-related settings.

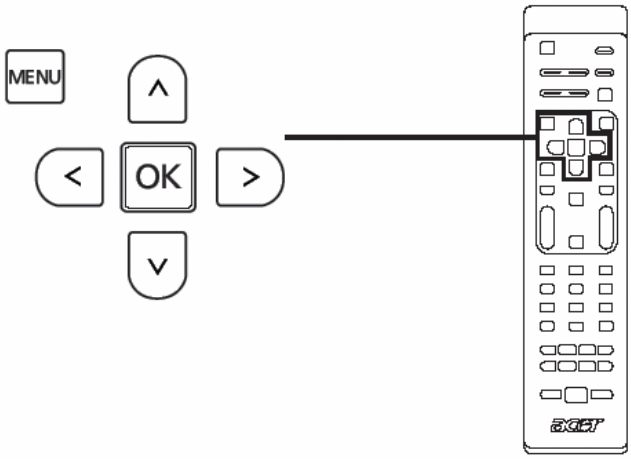
Setting scenario mode in TV

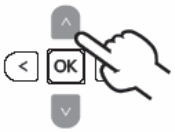
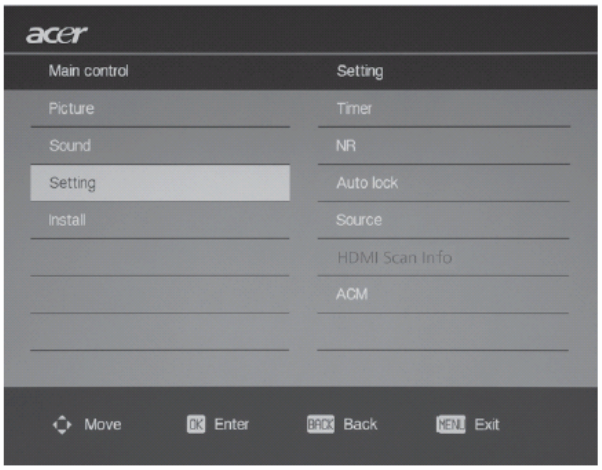
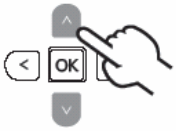
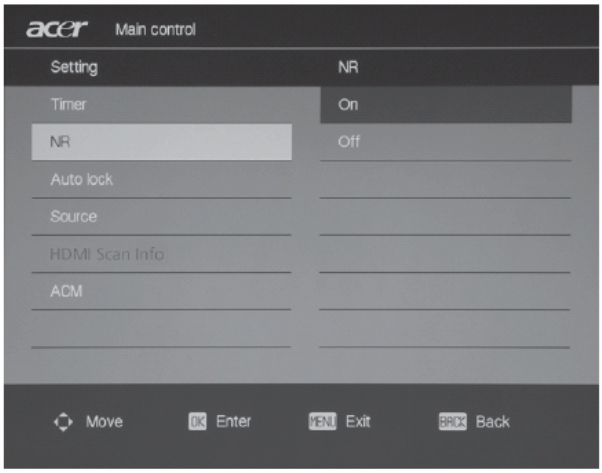
Scenario mode has six preset viewing modes designed to give you the best picture quality when watching a particular kind of programme. There are six pre-defined audio and video settings for optimal enjoyment of the following scenarios: Standard, Movie, Sport, Concert, Game, User.

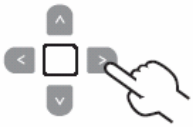
Pressing the **Empowering Key** will toggle between the different modes.

Mode	Information
Standard	Standard mode allows you to watch your favourite channels with sharp, brilliant imagery via adaptive brightness and contrast adjustments, and listen to clear-sounding audio.
Movie	For comfortably enjoying movies at home, Movie mode displays dim scenes in clear detail; compensates for colour; and smoothly presents motion images. This is accomplished through optimal Gamma correction plus saturation, brightness and contrast adjustments. Movie mode makes the most of high-definition movie soundtracks.
Sport	Sport mode is suited for outdoor sports programmes, with accurate background depth and clear gradation between the bright, outdoor playing field and darker auditoriums. Sports mode also brilliantly enhances colours and presents swiftly moving pictures without residual images. All of this is achieved via specific Gamma corrections and saturation adjustments. Precise audio can be heard.
Concert	Concert mode places you in a virtual concert hall, opera house or other dim environment by means of adaptive brightness and contrast adjustments. Concert mode accentuates symphonic harmonies and the tenor audio range.
Game	Game mode carefully details the exquisite graphics of modern video games, providing lifelike entertainment while protecting your eyesight by adjusting brightness and contrast. What's more, Game mode provides a heightened audio experience.
User	User mode allows you to save your favourite video and audio settings.

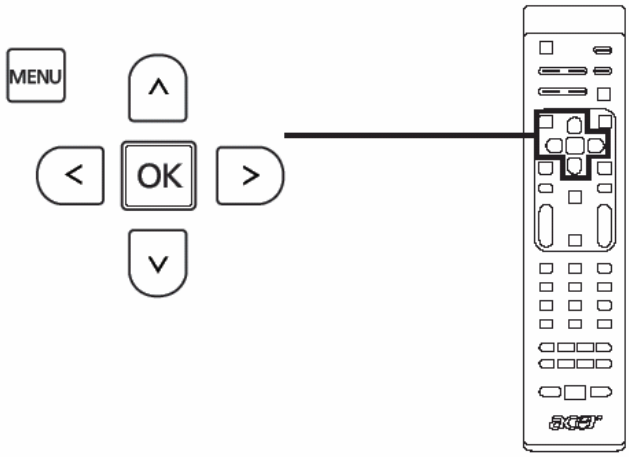
Advanced setting

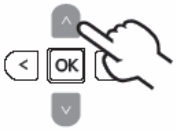
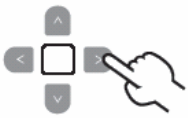


Advanced setting			
1		Press the **Menu** key from the remote control hand set, to invoke the OSD (On Screen Display).	
2			Using the **directional keys** to navigate, select **Setting** from the OSD.
3			Using the **directional keys**, to navigate through **'NR'** or **'ACM'**.

4		* **NR (Noise Reduction)**: This function filters noise from a signal. You can set to '**on**' or '**off**' depending on your preference. * **ACM (Adaptive Contrast Management)**: This function automatically adjusts picture contrast, depending on the brightness of the video content. You can turn this feature either to '**on**' or '**off**'.
5		Press **MENU** to exit.

Steady sound



Steady sound			
1		Press the **Menu** key from the remote control hand set, to invoke the OSD (On Screen Display).	
2			Using the **directional keys**, navigate to and select **Sound** from the OSD. Navigate to '**Steady sound**' to adjust settings.
3		This function prevents sudden changes in the audio output level. If this function is selected as '**On**,' volume levels will be consistent when switching between input sources and changing channels.	
4		Press **MENU** to exit.	

How To Optimize The DOS-Mode

Plug And Play

Plug & Play DDC2B Feature

This monitor is equipped with VESA DDC2B capabilities according to the VESA DDC STANDARD. It allows the monitor to inform the host system of its identity and, depending on the level of DDC used, communicate additional information about its display capabilities.

The DDC2B is a bi-directional data channel based on the I²C protocol. The host can request EDID information over the DDC2B channel.

This monitor will appear to be non-functional if there is no video input signal. In order for this monitor to operate properly, there must be a video input signal.

This monitor meets the Green monitor standards as set by the Video Electronics Standards Association (VESA) and/or the United States Environmental Protection Agency (EPA) and The Swedish Confederation Employees (NUTEK). This feature is designed to conserve electrical energy by reducing power consumption when there is no video-input signal present. When there is no video input signals this monitor, following a time-out period, will automatically switch to an OFF mode. This reduces the monitor's internal power supply consumption. After the video input signal is restored, full power is restored and the display is automatically redrawn. The appearance is similar to a "Screen Saver" feature except the display is completely off. The display is restored by pressing a key on the keyboard, or clicking the mouse.

Using the Right Power Cord

The accessory power cord for the Northern American region is the wallet plug with NEMA 5-15 style and is UL listed and CSA labeled. The voltage rating for the power cord shall be 125 volts AC.

Supplied with units intended for connection to power outlet of personal computer: Please use a cord set consisting of a minimum No. 18 AWG, type SJT or SVT three conductors flexible cord. One end terminates with a grounding type attachment plug, rated 10A, 250V, CEE-22 male configuration. The other end terminates with a molded-on type connector body, rated 10A, 250V, having standard CEE-22 female configuration.

Please note that power supply cord needs to use VDE 0602, 0625, 0821 approval power cord in European counties.

Machine Disassembly

Chapter 4

This chapter contains step-by-step procedures on how to disassemble the monitor for maintenance.

The tools listed as below are that we may use during this procedure:

1. A proper screwdriver
2. A pair of glove
3. A pliers
4. A plastic knife

Disassembly Procedure

Disassemble the Base

1. Put the monitor on a clean soft cloth with panel facing to the table. (Fig 1)

(Fig 1)

2. Remove the screws to remove stand base. (Fig 2-3)

(Fig 2)

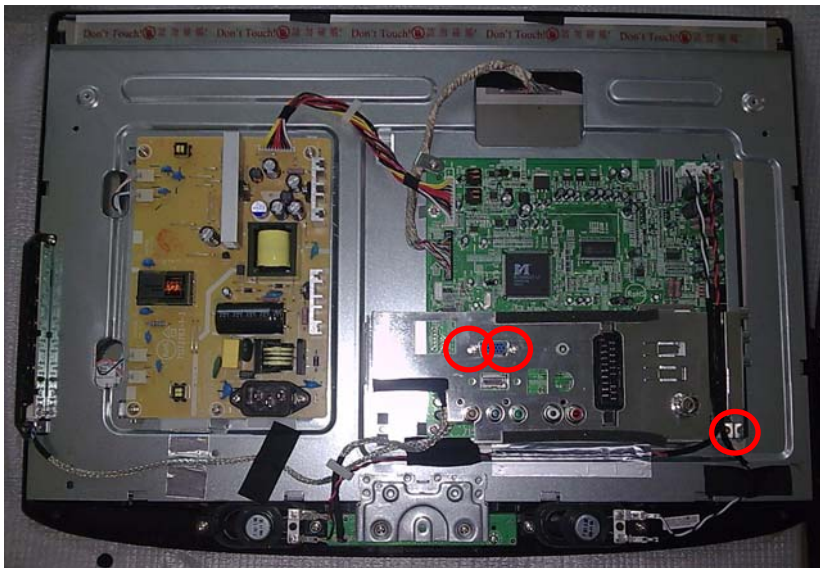
(Fig 3)

Disassemble the back cover

1. Remove four screws to remove back cover. (Fig 4)

(Fig 4)

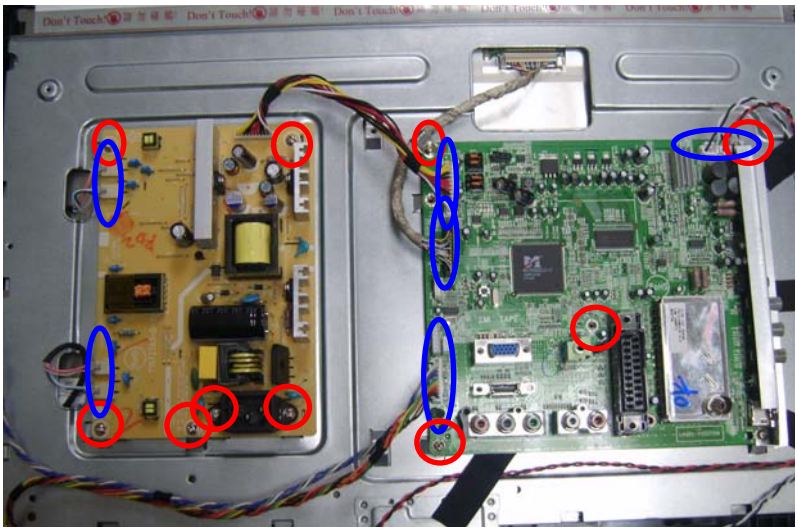
Remove the Shielding-EMI



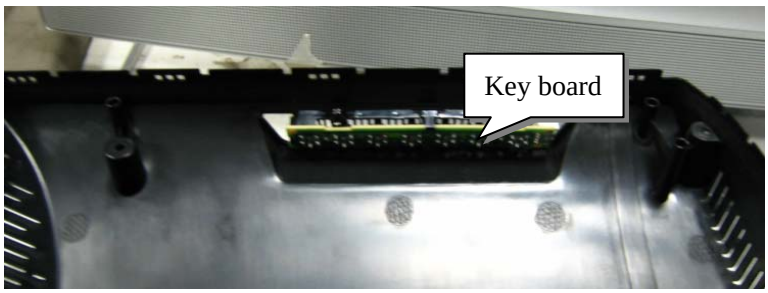
(Fig 5)

Remove the main board, power board and key board.

1. Release all the connecting wires marked in blue for these boards. (Fig 6)
2. Remove the screws marked in red to remove power board and main board. (Fig 6)
3. Remove the key board. (Fig 7)



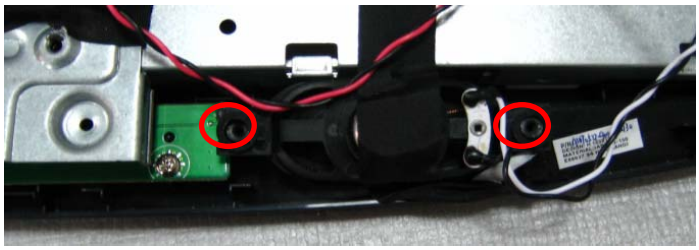
(Fig 6)



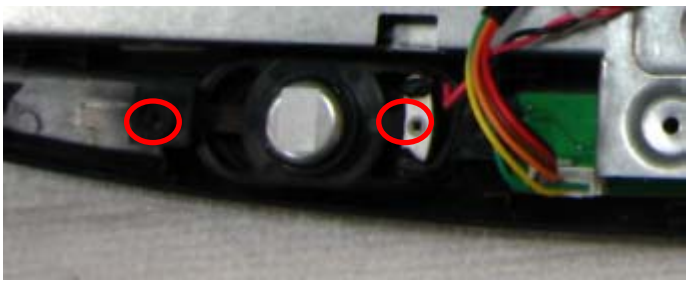
(Fig 7)

Disassemble the speaker.

Remove the four screws marked in red to remove the speakers. (Fig 8-9)



(Fig 8)



(Fig 9)

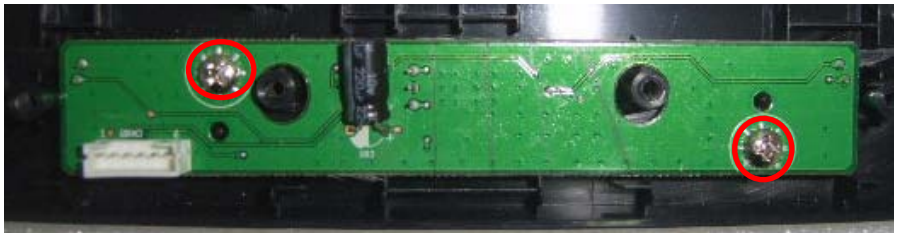
Remove the main frame

Remove the four screws marked in red to remove the main frame.

(Fig 10)

(Fig 11)

Disassemble the IR board

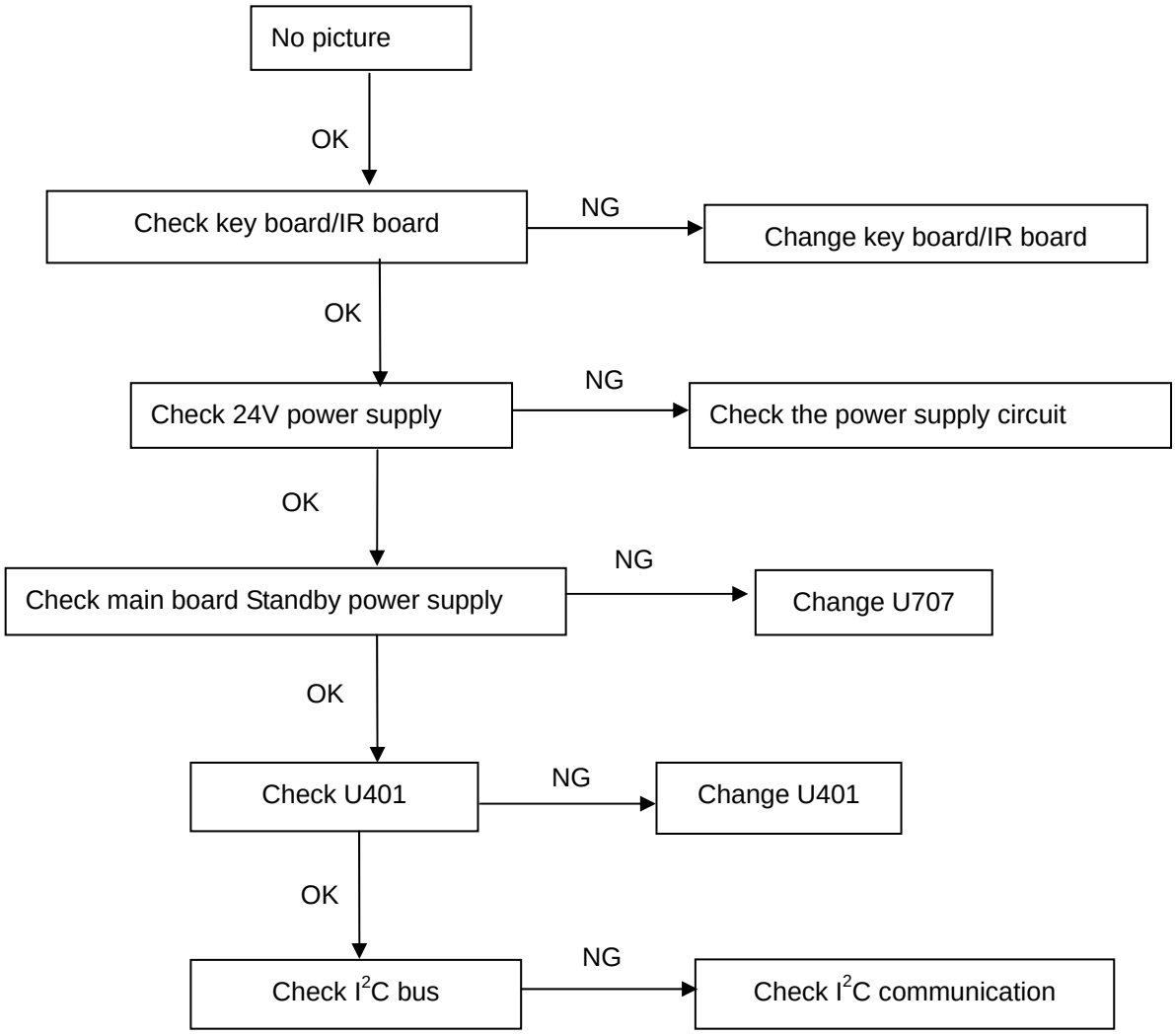


(Fig 12)

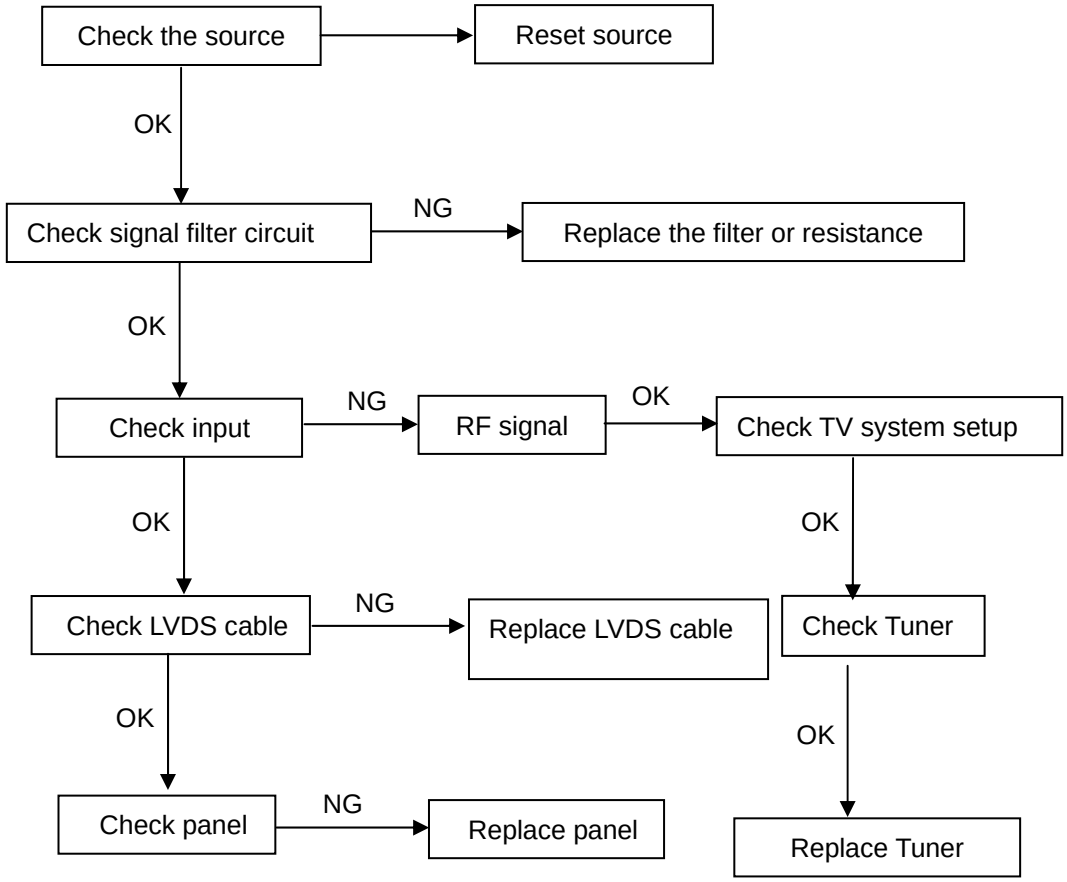
Disassemble the front panel

(Fig 13)

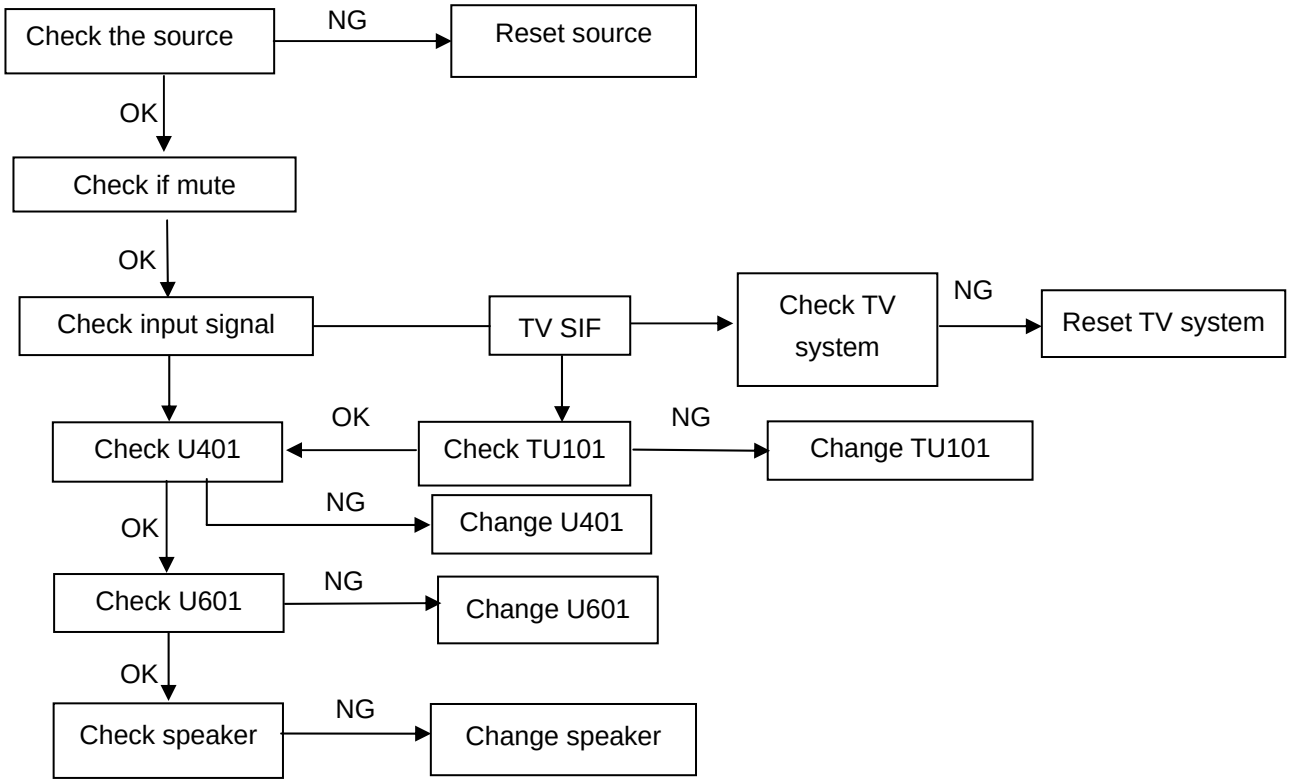
No picture (LED orange)



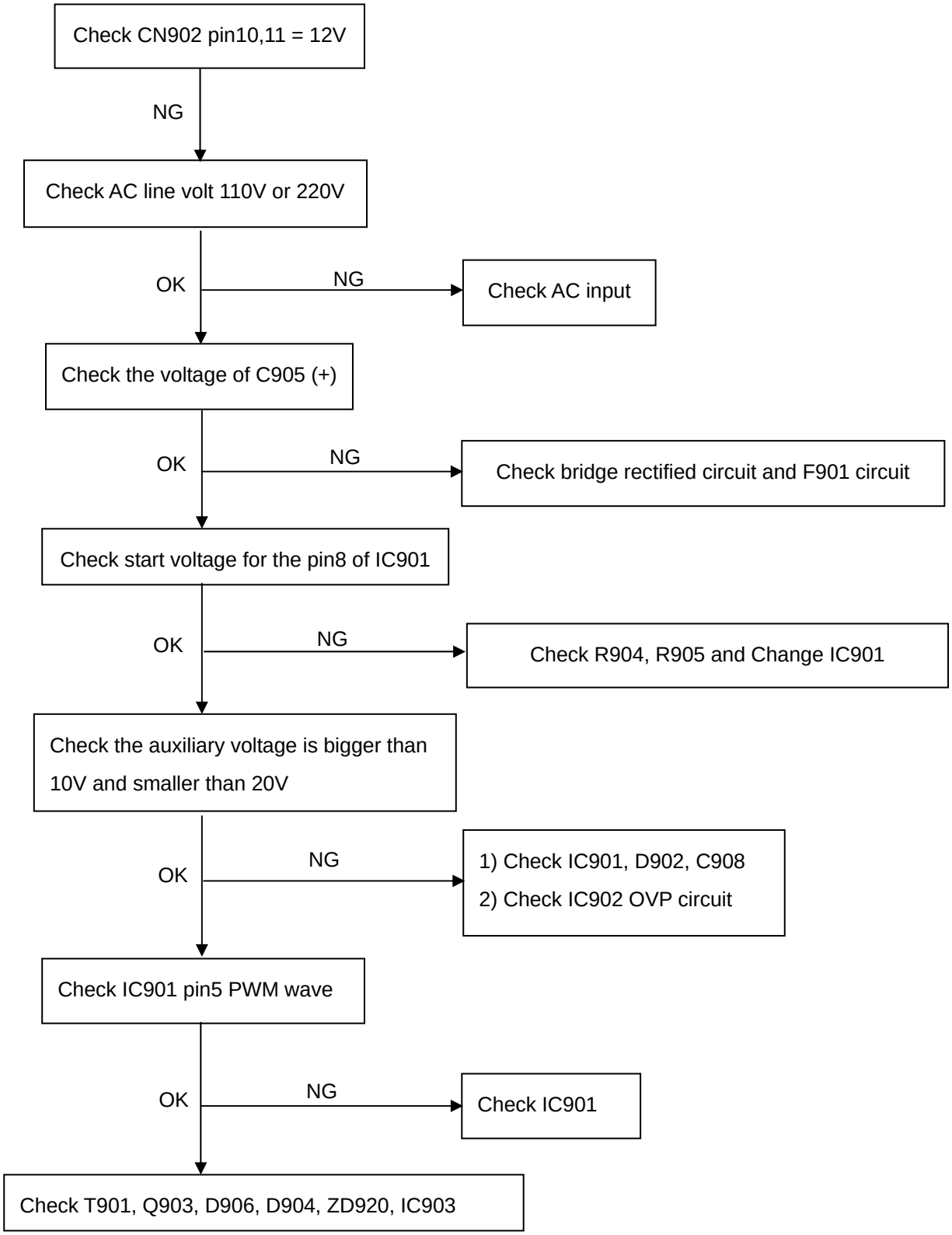
Abnormal display



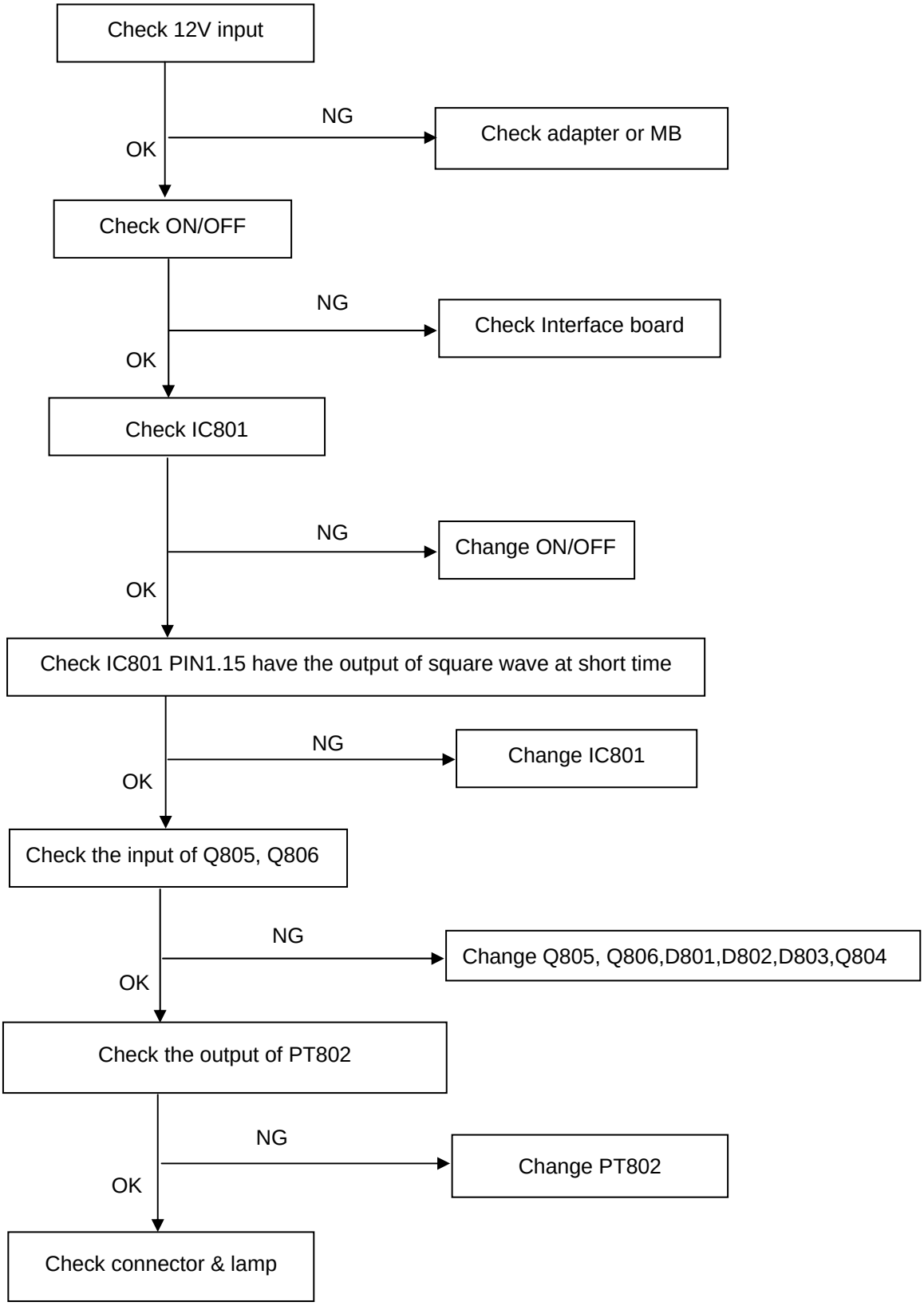
No sound


Check the source
NG
Reset source
OK
Check if mute
OK
Check input signal
TV SIF
Check TV system
NG
Reset TV system
Check U401
OK
Check TU101
NG
Change TU101
NG
Change U401
OK
Check U601
NG
Change U601
OK
Check speaker
NG
Change speaker

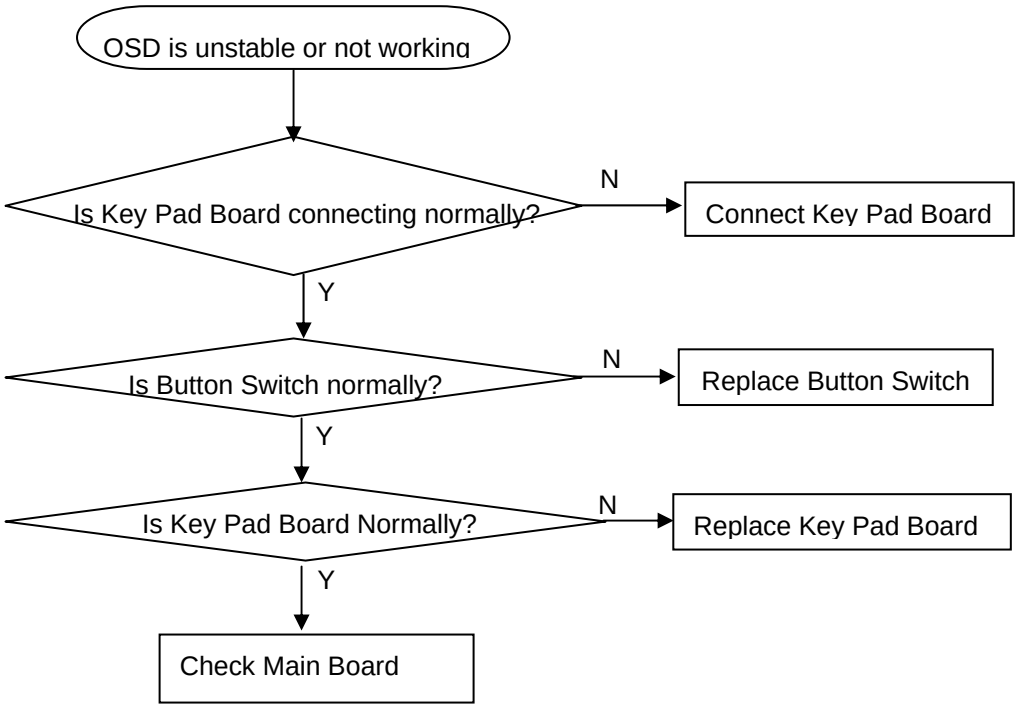
No Power (No LED indicator)



W / LED, No Backlight

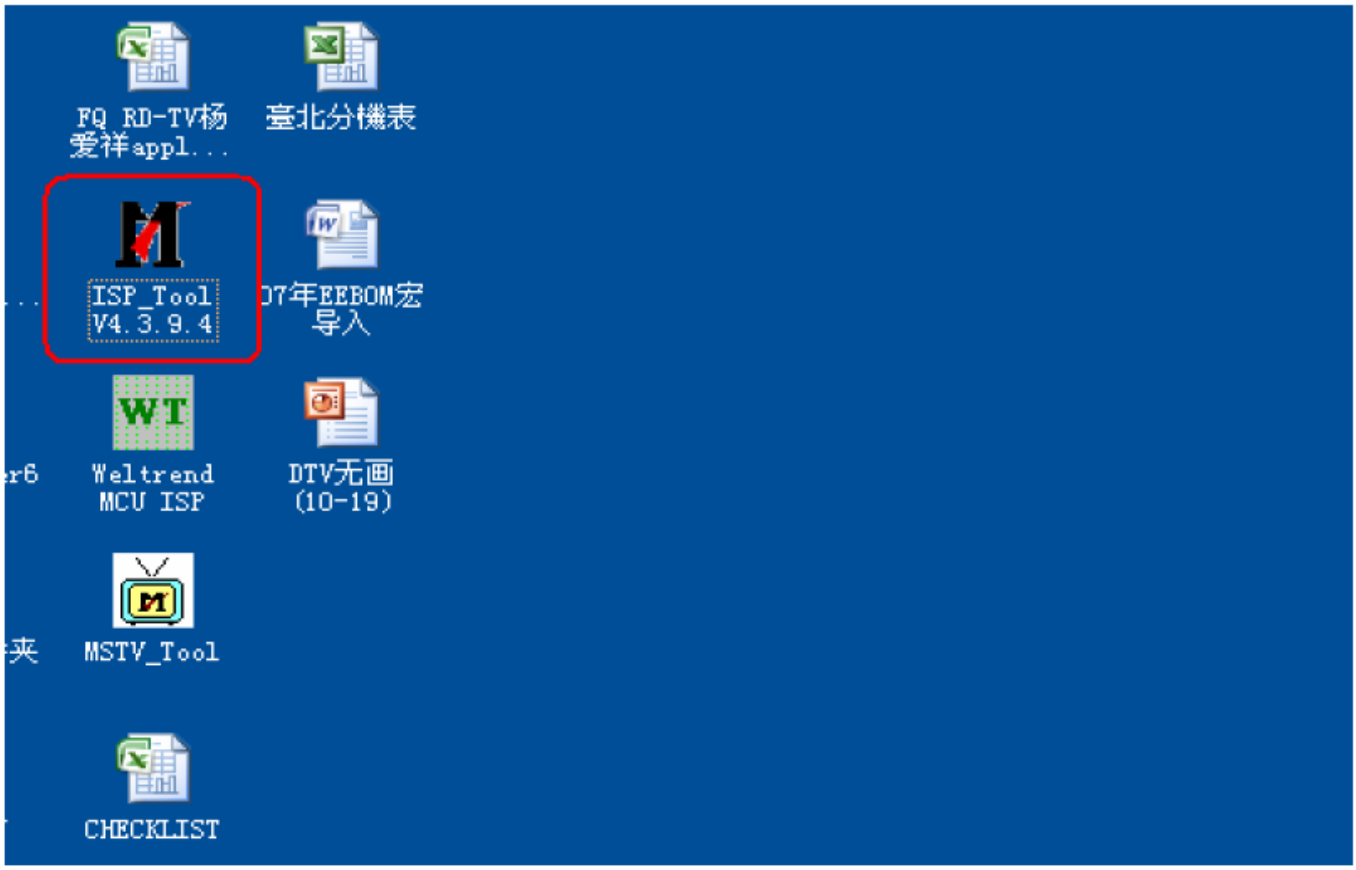


Key Board

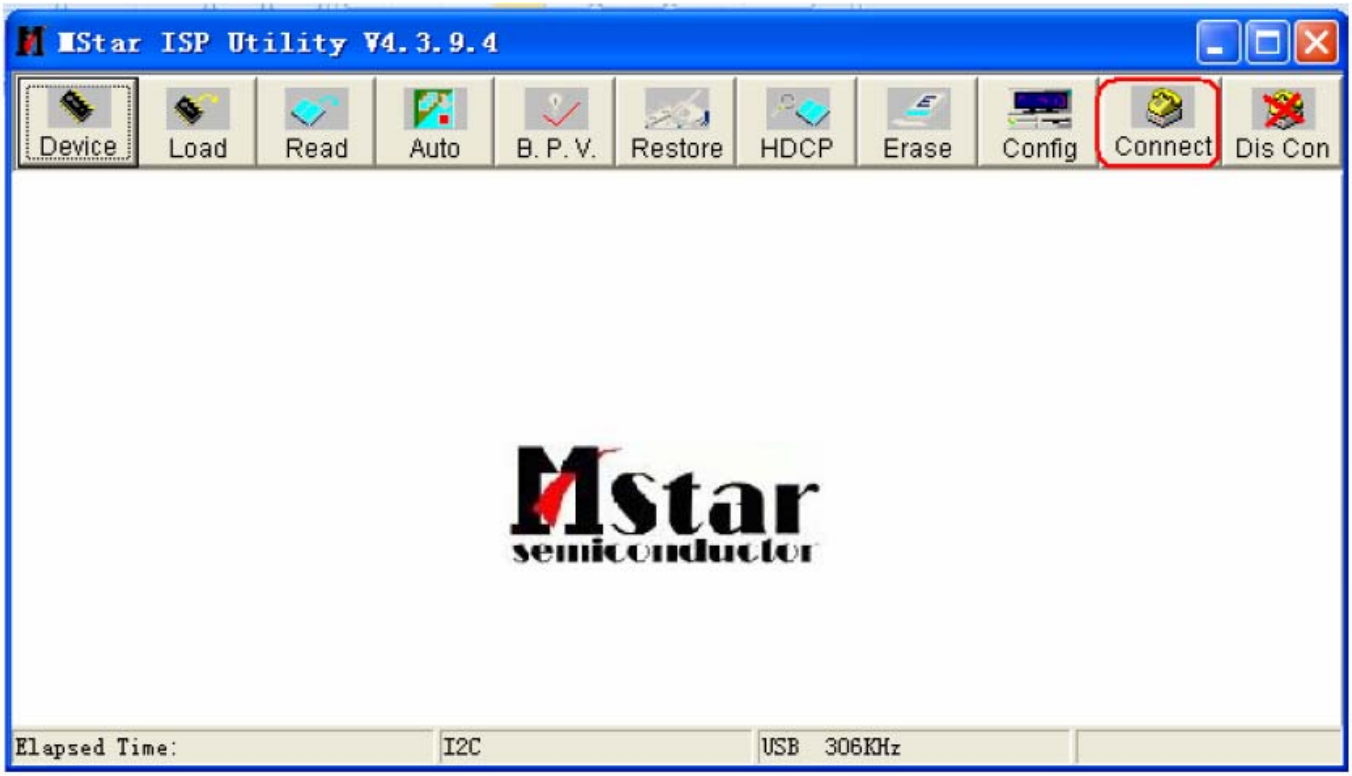

OSD is unstable or not working
Is Key Pad Board connecting normally?
N
Connect Key Pad Board
Y
Is Button Switch normally?
N
Replace Button Switch
Y
Is Key Pad Board Normally?
N
Replace Key Pad Board
Y
Check Main Board

1. Using USB port connecting PC & MST99980 Board via ISP board as below. Turn on the monitor.

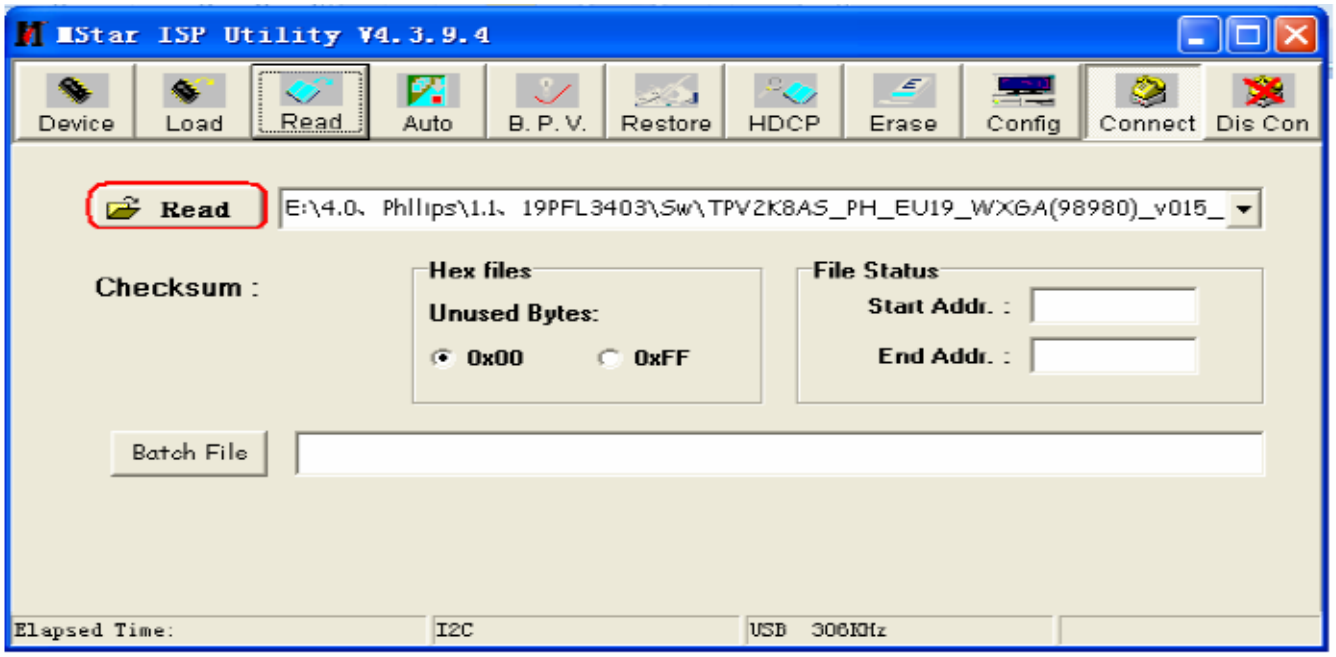
2. Run the program ISP_Tool.

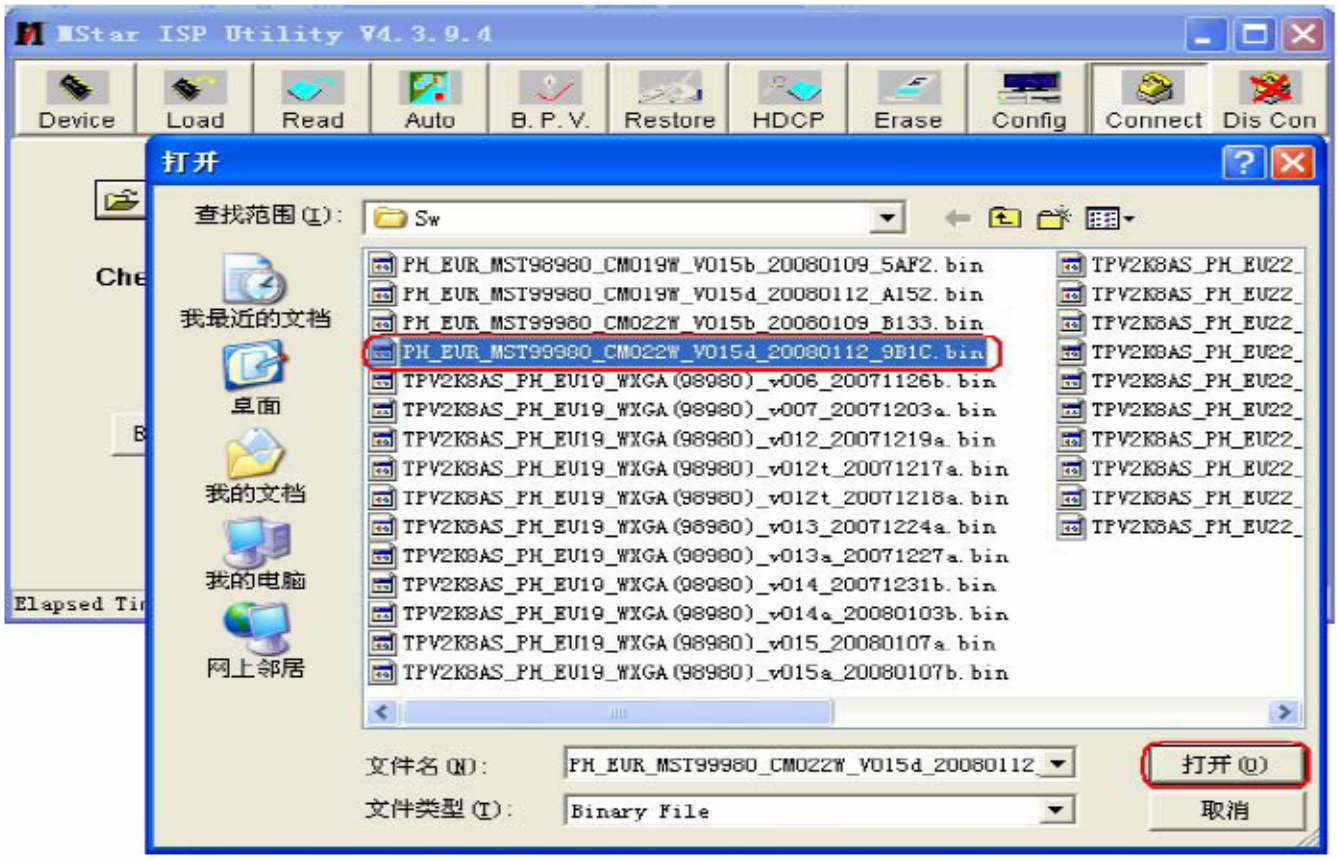


3. Click the button “Connect”, if it can identify the type of the device, please click the “Dis Con” and then click the “Connect” again.

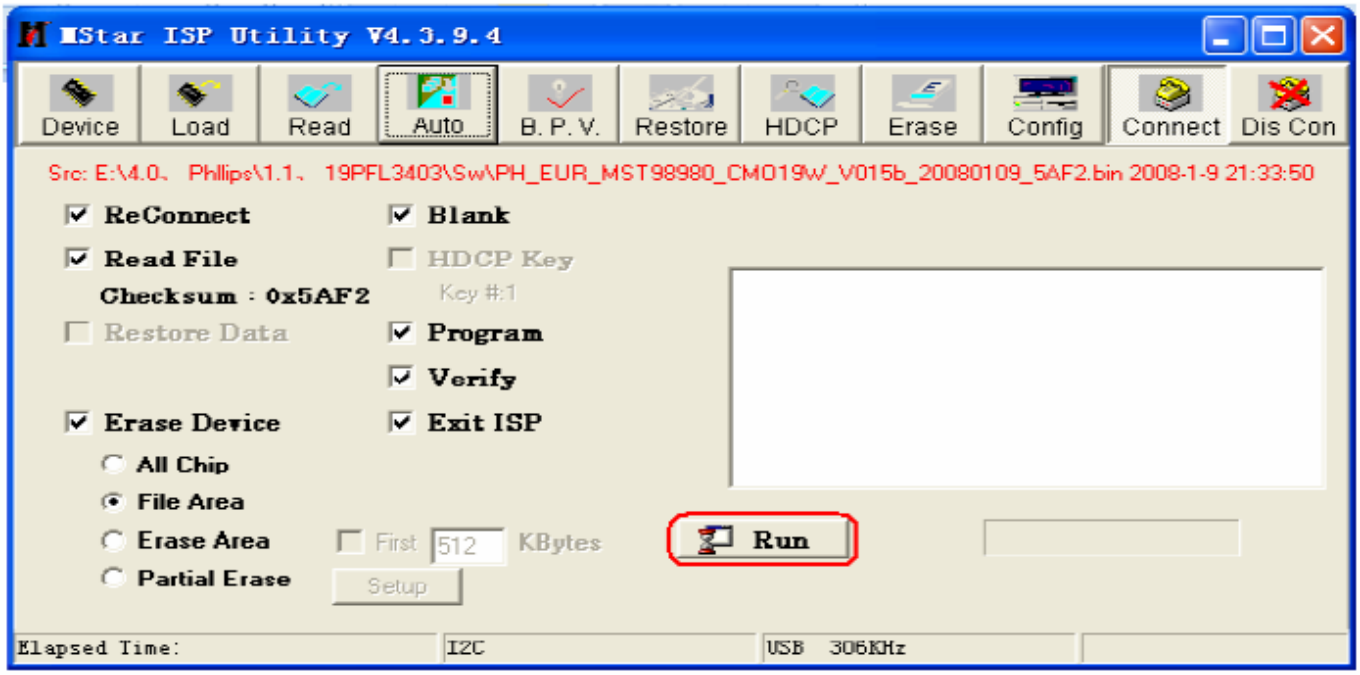


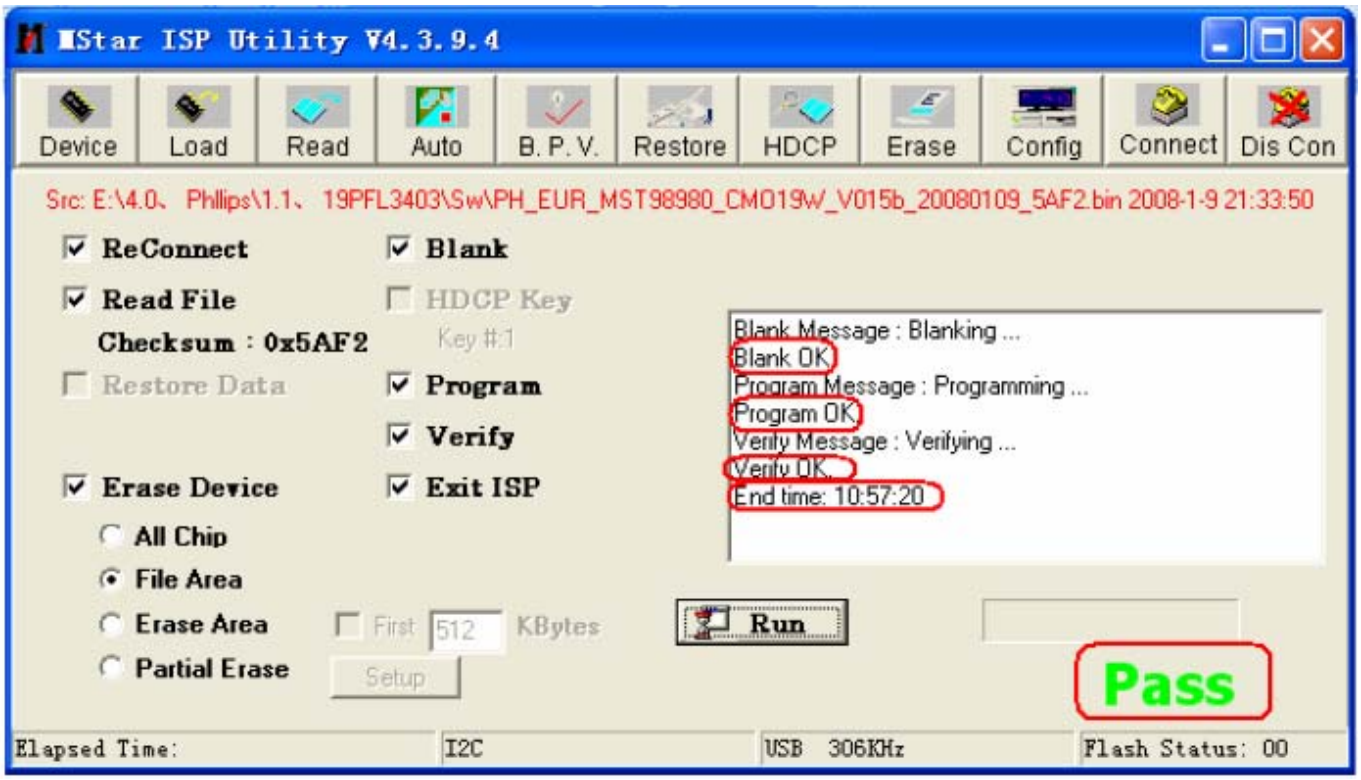
4. Click the button “Read” to load the software file and then click the “Auto”.





5. When the picture showed as below, we can click the “run” to finish to upgrading.





Approximately 30 minutes should be allowed for warm up before proceeding white balance adjustment.

YPbPr Mode display adjustment

White balance adjustment (B)

General set-up:

Equipment Requirements: Minolta CA-110 or Equivalent Color analyzer

Quantum Data Pattern Generator 802G, 802BT or equivalent instrument

Input requirements:

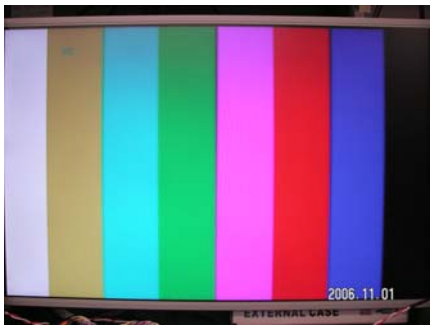
Input Signal Type: YPbPr signal

1. 720P mode, TVBar100 pattern by 802G or 802BT.
2. Select Smart picture to User mode and check the x, y data.

Input Signal Strength: 1 Vpp for Y signal; 700 mVpp for Pb & Pr signal

Input Injection Point: YPbPr (RAC jack)

720P, TVBar100 pattern



`

Alignment method:

Initial Set-up:

1. Select source as "**Component**".

2. Set Smart picture as "**User**" and to be Contrast =50**(TBD)** (CMO), Brightness=50**(TBD)** (CMO), at normal menu mode.

3. Apply "TVBar100" pattern with color bar pattern by signal generator.

4. Enter factory mode menu: press "MENU+ "234" then enter FAC mode.

Alignment:

1. At FAC mode menu, select **FACTORY->Picture ->ADC -> Auto Colour** item. Then press ">" key to adjust ADC_GAIN_R, ADC_GAIN_G, ADC_GAIN_B and ADC_OFFSET_R, ADC_OFFSET_G, ADC_OFFSET_B. Then

store those values to NVM.

White- Balance alignment:

1. Select source as “**HDMI1**”

2. Apply Flat pattern **(100% white pattern)**, at FAC mode menu, select **Factory -> Picture -> Colour Temp** item

3. Set color temperature to “**Standard**”.

4. Adjust the R Gain, G Gain, B Gain values to meet “Standard” color coordinates specification below. Then store those values to NVM.

5. Set color temperature to “**Warm**”.

6. Adjust the R Gain, G Gain, B Gain values to meet “Warm” color coordinates specification below. Then store those values to NVM.

7. Set color temperature to “**Cold**”.

8. Adjust the R Gain, G Gain, B Gain values to meet “Cold” color coordinates specification below. Then store those values to NVM.

Color temperature **Standard/Warm/Cold** (x, y) co-ordinates specification:

Picture Mode	x	Y
Standard(6500^{o}K)	**0.314±0.015**	**0.329±0.015**
Warm (5500^{o}K)	**0.332±0.015**	**0.341±0.015**
Cold (7500^{o}K)	**0.300±0.015**	**0.310±0.015**

Table: Reading with Minolta CA-110.

Note:

1. Use Minolta CA-110 for colour coordinates and luminance check.

2. Luminance > 250 cd/m^2 in the center of the screen when Brightness control at 100; Contrast control at 100

3. Reset AV setting, smart picture shall be recalled to be “Standard” and Contrast=50 (CMO), Brightness=50 (CMO)

PC mode display adjustment

WHITE-D adjustment (B)

General set-up:

Equipment Requirements: Minolta CA-110 or Equivalent Color analyzer

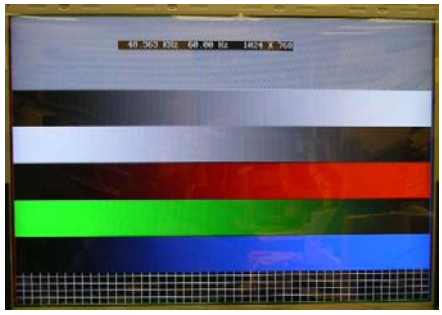
Chroma 2250 or equivalent PC signal generator

Input requirements:
Input Signal Type: PC VGA signal

1024X768/60Hz PC mode with **PGCWRGB** pattern. (see pattern-1)

Input Signal Strength: 0.7 Vp-p linear voltage.

Input Injection Point: PC D-SUB input



Pattern-1

Alignment method:

Initial Set-up:

1. Select source as “**VGA**”.

2. Set Contrast = 50 (CMO) and Brightness=50 (CMO), at **Standard** menu mode.

3. Apply **“PGCWRGB”(pattern-1)** pattern by VGA pattern generator.

4. Enter factory mode menu: press “MENU+ “234” then enter FAC mode

Alignment:

1. At FAC mode menu, select **FACTORY->Picture ->ADC -> Auto Colour** item. Then press “>” key to adjust ADC_GAIN_R, ADC_GAIN_G, ADC_GAIN_B and ADC_OFFSET_R, ADC_OFFSET_G, ADC_OFFSET_B. Then store those values to NVM.

FRU (Field Replaceable Unit) List

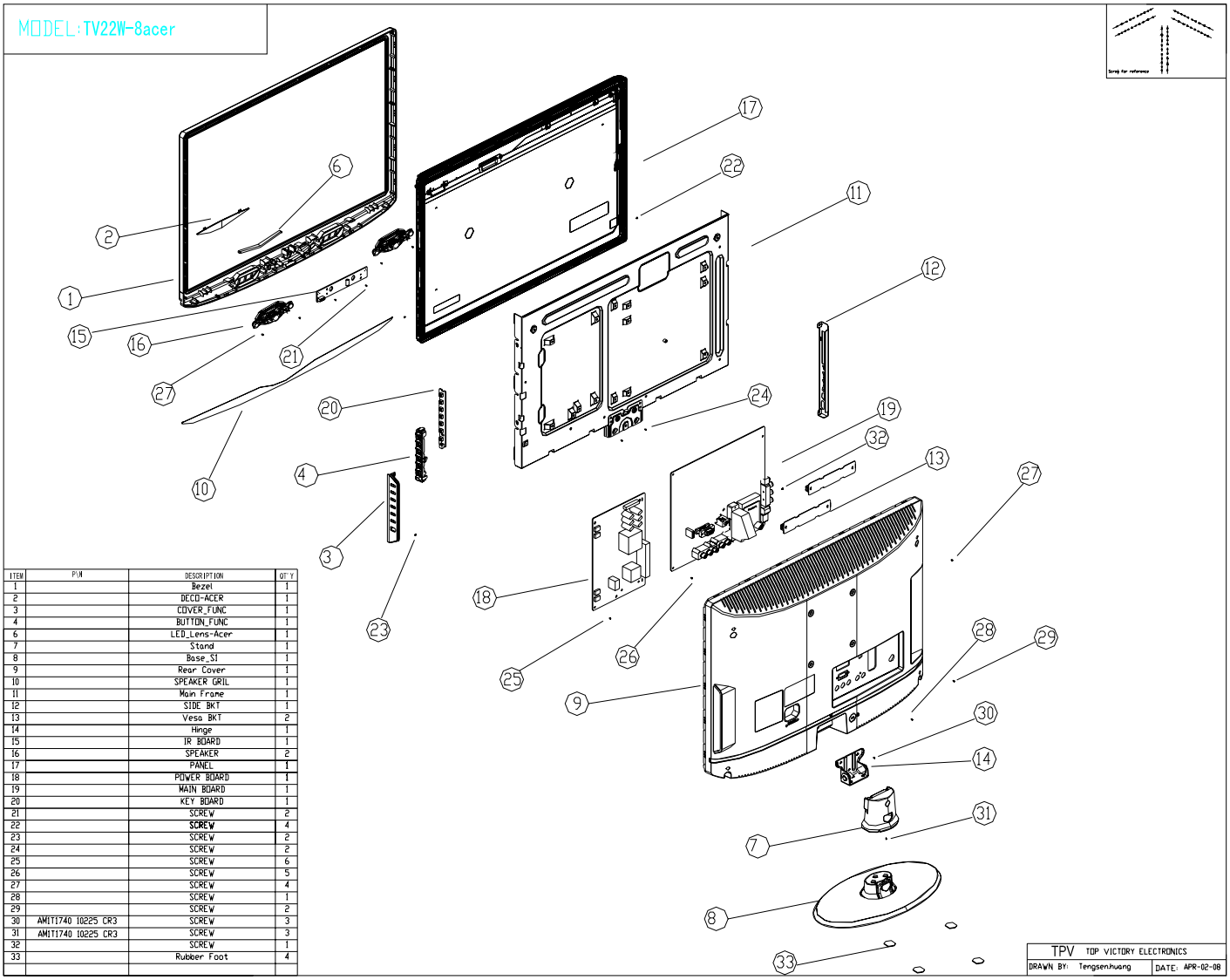
Chapter 8

This chapter gives you the FRU (Field Replaceable Unit) listing in global configurations of AT2230 & AT2231.Refer to this chapter whenever ordering for parts to repair or for RMA (Return Merchandise Authorization).

NOTE: Please note WHEN ORDERING FRU PARTS that you should check the most up-to-date information available on your regional web or channel (http://aicsl.acer.com.tw/spl/). For whatever reasons a part number change is made, it will not be noted in the printed Service Guide. For ACER AUTHORIZED SERVICE PROVIDERS, your Acer office may have a different part number code from those given in the FRU list of this printed Service Guide. You must use the local FRU list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

NOTE: To scrap or to return the defective parts, you should follow the local government ordinance or regulations on how to dispose it properly, or follow the rules set by your regional Acer office on how to return it.

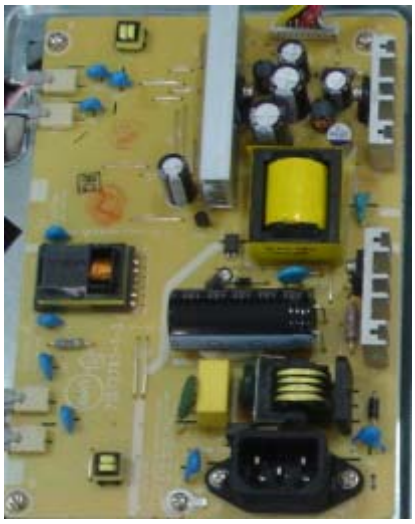
Exploded Diagram (Model: AT2230 & AT2231)

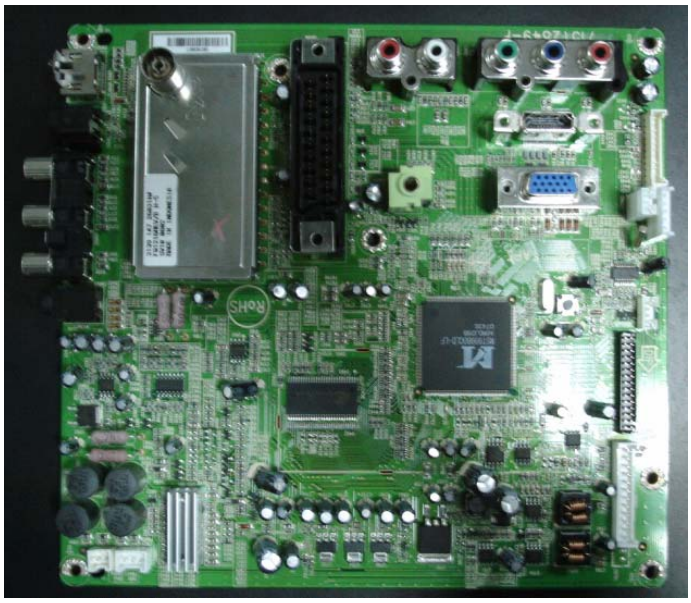
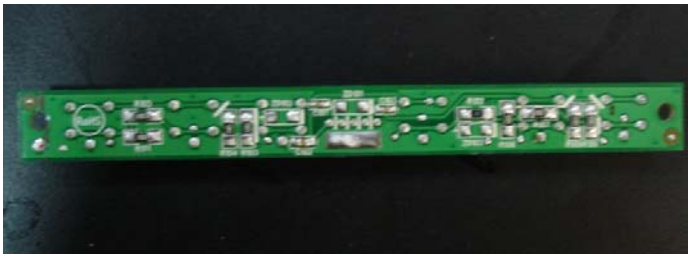
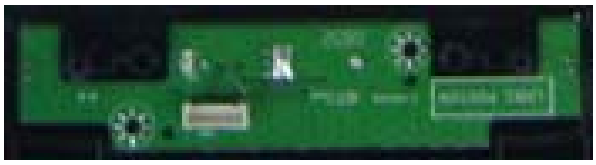


ITEM	P\N	DESCRIPTION	QTY
1		Bezel	1
2		DECO-ACER	1
3		COVER_FUNC	1
4		BUTTON_FUNC	1
6		LED_Lens-Acer	1
7		Stand	1
8		Base_SI	1
9		Rear Cover	1
10		SPEAKER GRIL	1
11		Main Frame	1
12		SIDE BKT	1
13		Vesa BKT	2
14		Hinge	1
15		IR BOARD	1
16		SPEAKER	2
17		PANEL	1
18		POWER BOARD	1
19		MAIN BOARD	1
20		KEY BOARD	1
21		SCREW	2
22		SCREW	4
23		SCREW	2
24		SCREW	2
25		SCREW	6
26		SCREW	5
27		SCREW	4
28		SCREW	1
29		SCREW	2
30	AMITI740 10225 CR3	SCREW	3
31	AMITI740 10225 CR3	SCREW	3
32		SCREW	1
33		Rubber Foot	4

Part List

Above picture show the description of the following component.

Item	Picture	Description
1		Bezel
2		Panel
3		Base
4		Power Board

5		Main Board
6		Key Board
7		IR Board
8		Speaker

EDID Data

DDC DATA for D-Sub Input

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 0: 00   1: ff   2: ff   3: ff   4: ff   5: ff   6: ff   7: 00
 8: 04   9: 72  10: 30  11: 22  12: 40  13: e2  14: 01  15: 00
16: 1e  17: 12  18: 01  19: 03  20: 1c  21: 2f  22: 1e  23: 78
24: 2a  25: 78  26: f5  27: a6  28: 55  29: 48  30: 9b  31: 26
32: 12  33: 50  34: 54  35: bf  36: ef  37: 80  38: 81  39: 00
40: 81  41: 0f  42: 71  43: 4a  44: 71  45: 4f  46: 95  47: 0f
48: 81  49: 4f  50: 81  51: 80  52: 95  53: 00  54: 26  55: 39
56: 90  57: 30  58: 62  59: 1a  60: 27  61: 40  62: 68  63: b0
64: 36  65: 00  66: d9  67: 2c  68: 11  69: 00  70: 00  71: 1e
72: 8d  73: 27  74: 00  75: a0  76: 51  77: c0  78: 24  79: 30
80: 50  81: 80  82: 34  83: 00  84: d9  85: 2c  86: 11  87: 00
88: 00  89: 1e  90: 00  91: 00  92: 00  93: fc  94: 00  95: 41
96: 63  97: 65  98: 72  99: 20 100: 41 101: 54 102: 32 103: 32
104: 33 105: 30 106: 0a 107: 20 108: 00 109: 00 110: 00 111: fd
112: 00 113: 38 114: 4c 115: 1e 116: 55 117: 10 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 91
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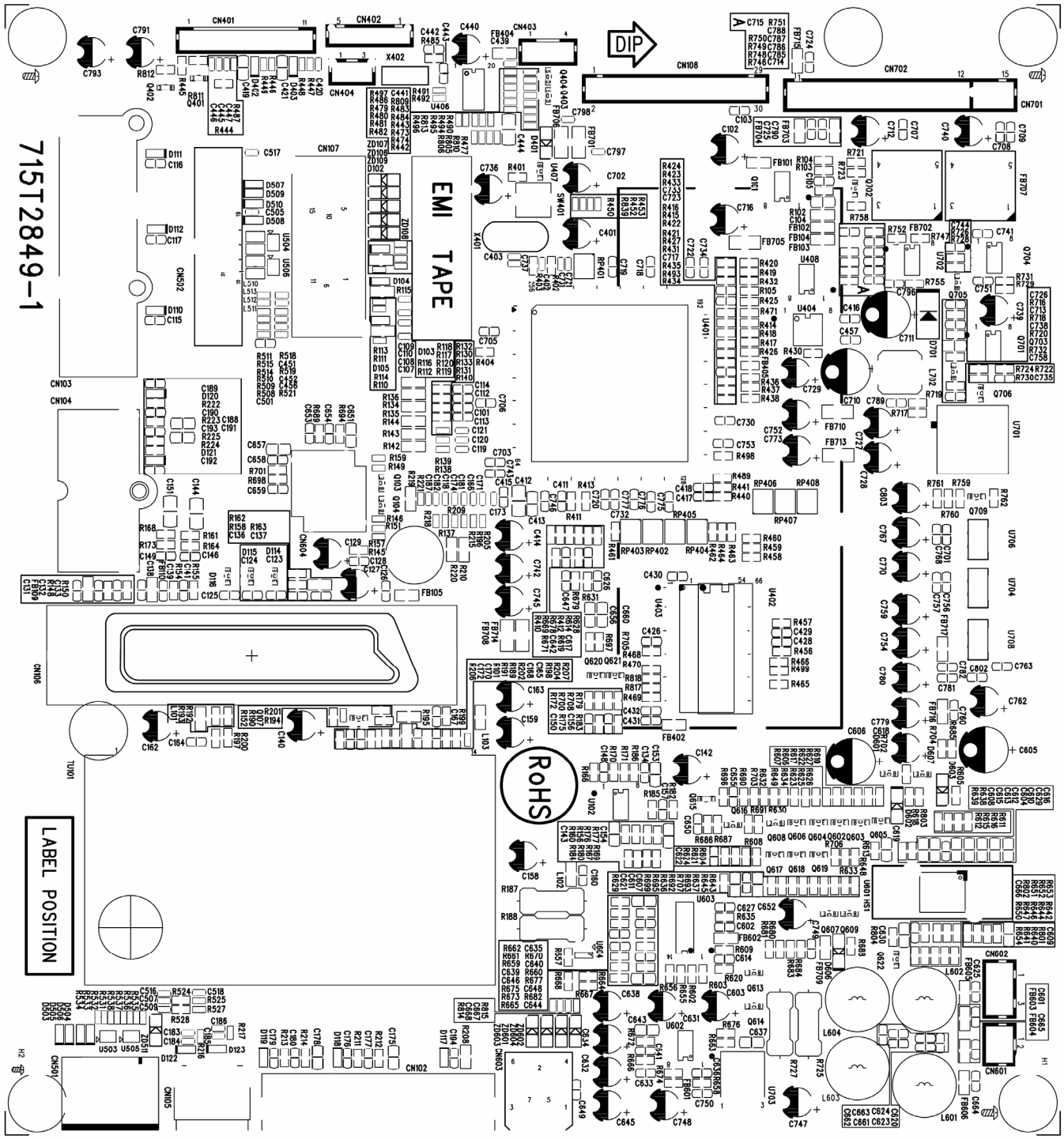
Main Board


715T2849-1
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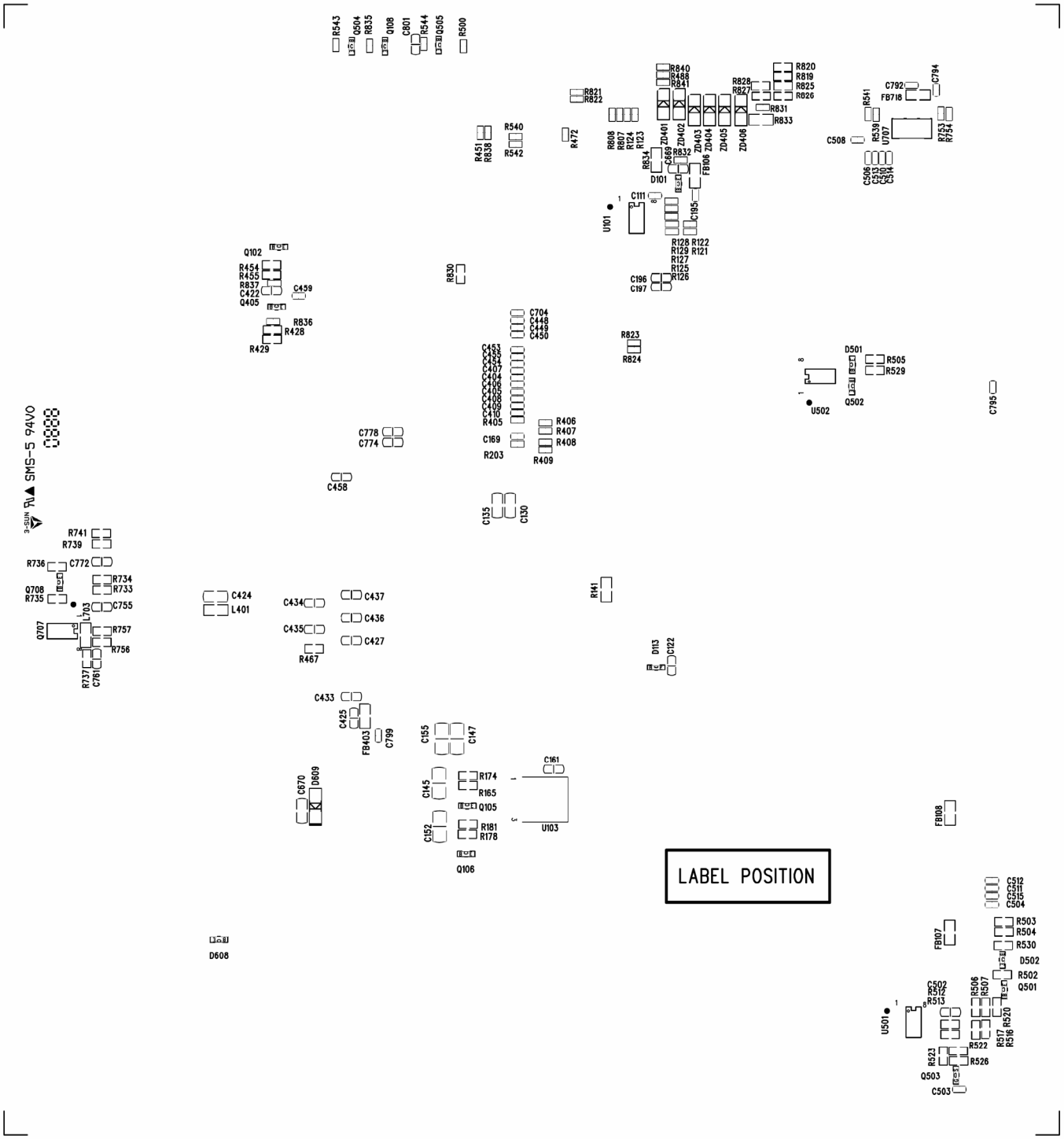
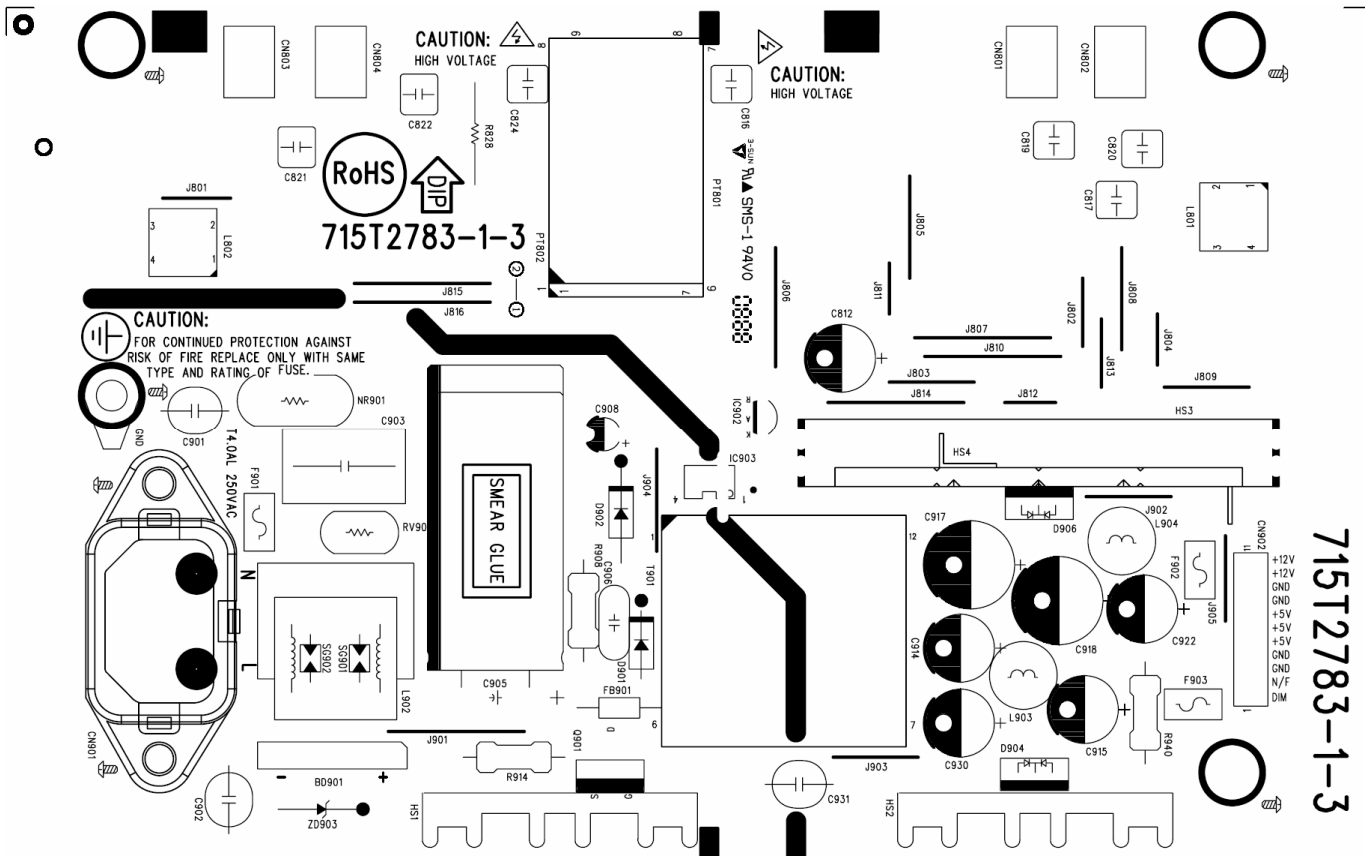
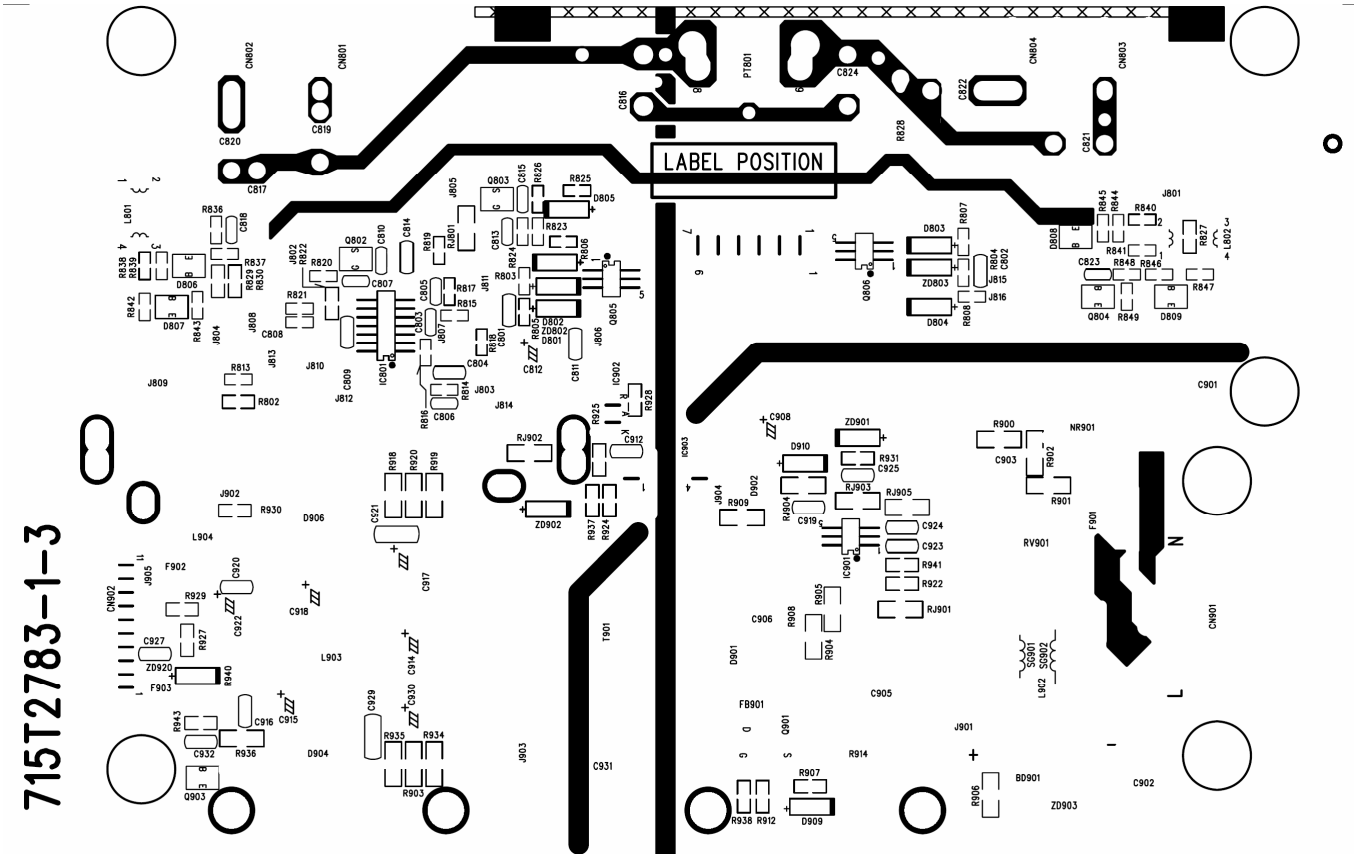
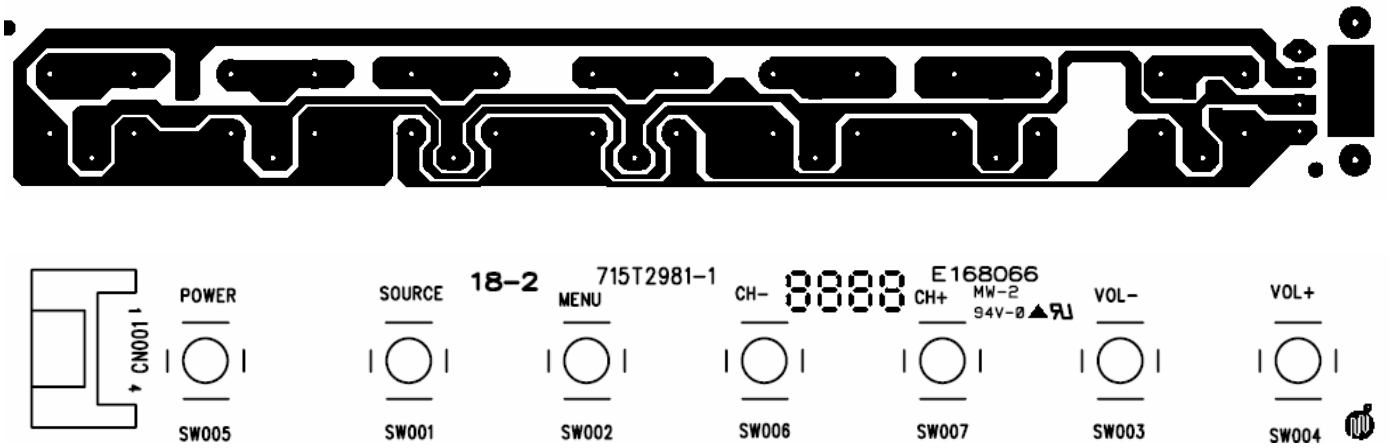

LABEL POSITION

Power Board

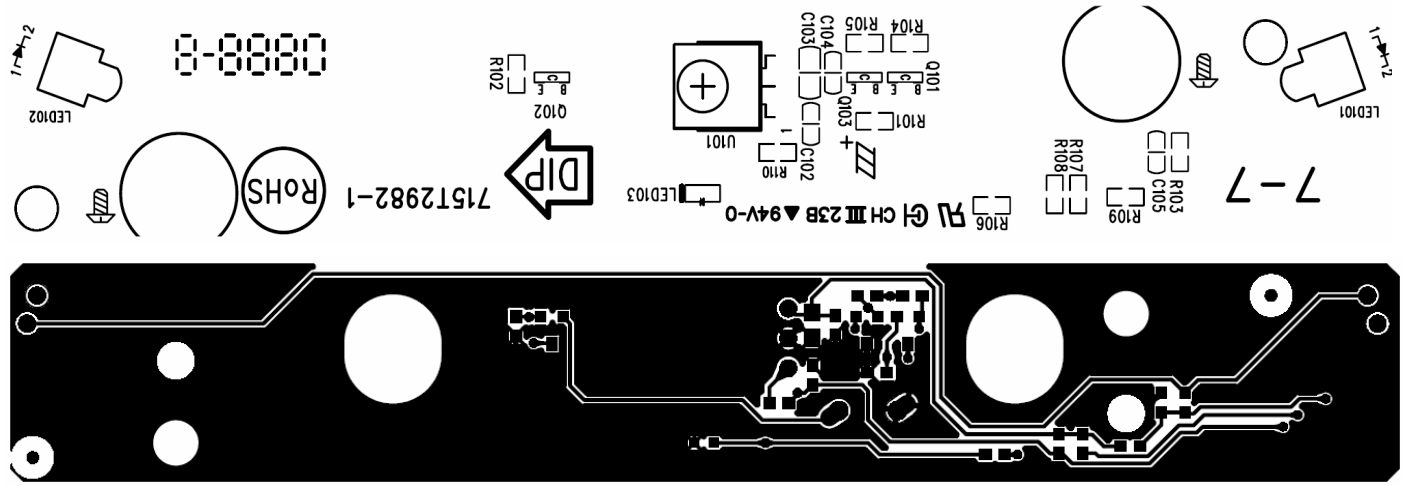

CAUTION:
HIGH VOLTAGE
CAUTION:
HIGH VOLTAGE
RoHS
715T2783-1-3
CAUTION:
FOR CONTINUED PROTECTION AGAINST
RISK OF FIRE REPLACE ONLY WITH SAME
TYPE AND RATING OF FUSE.
T4.0AL 250VAC
SMEAR GLUE
715T2783-1-3


LABEL POSITION
715T2783-1-3

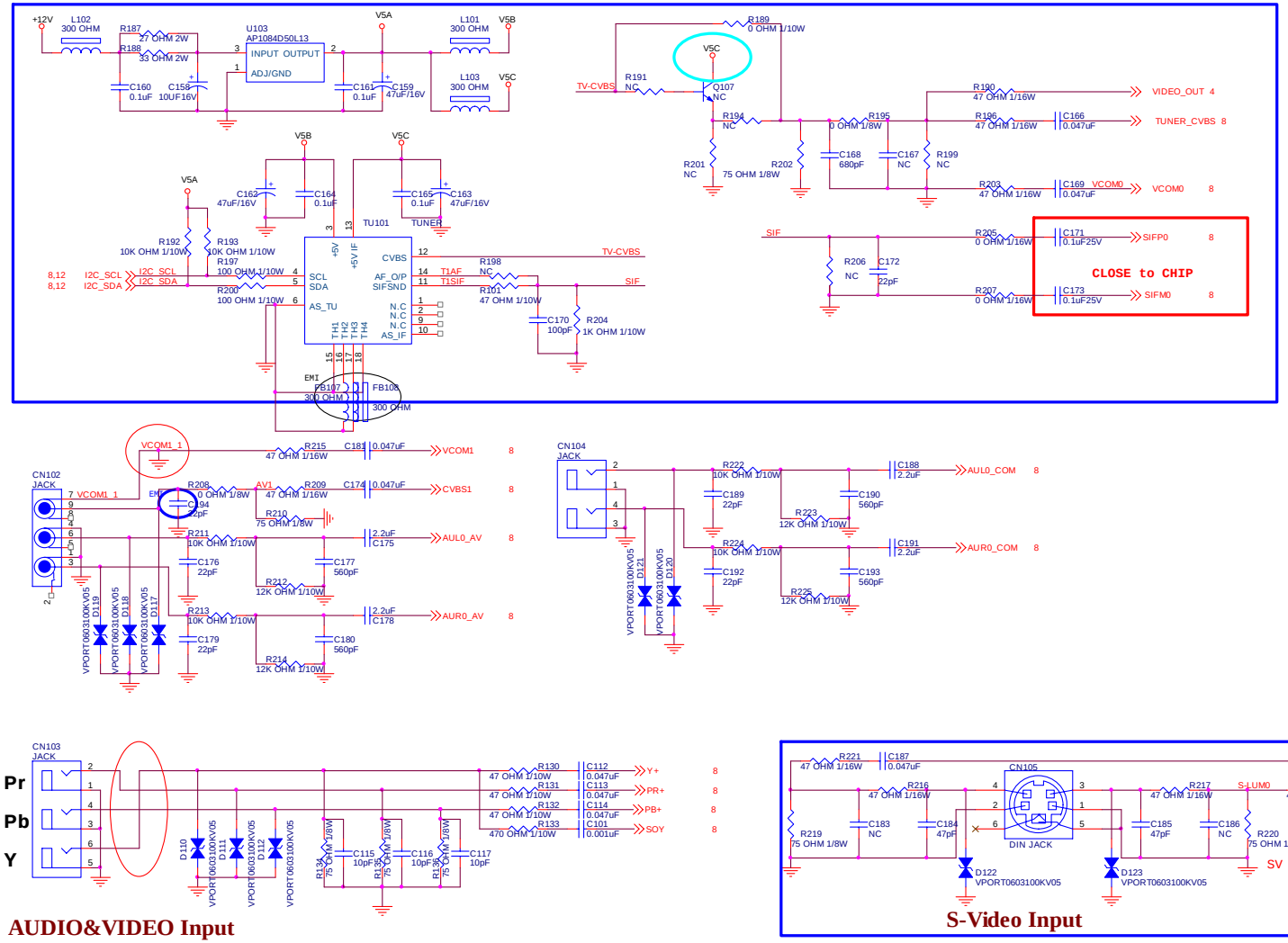
Key Board



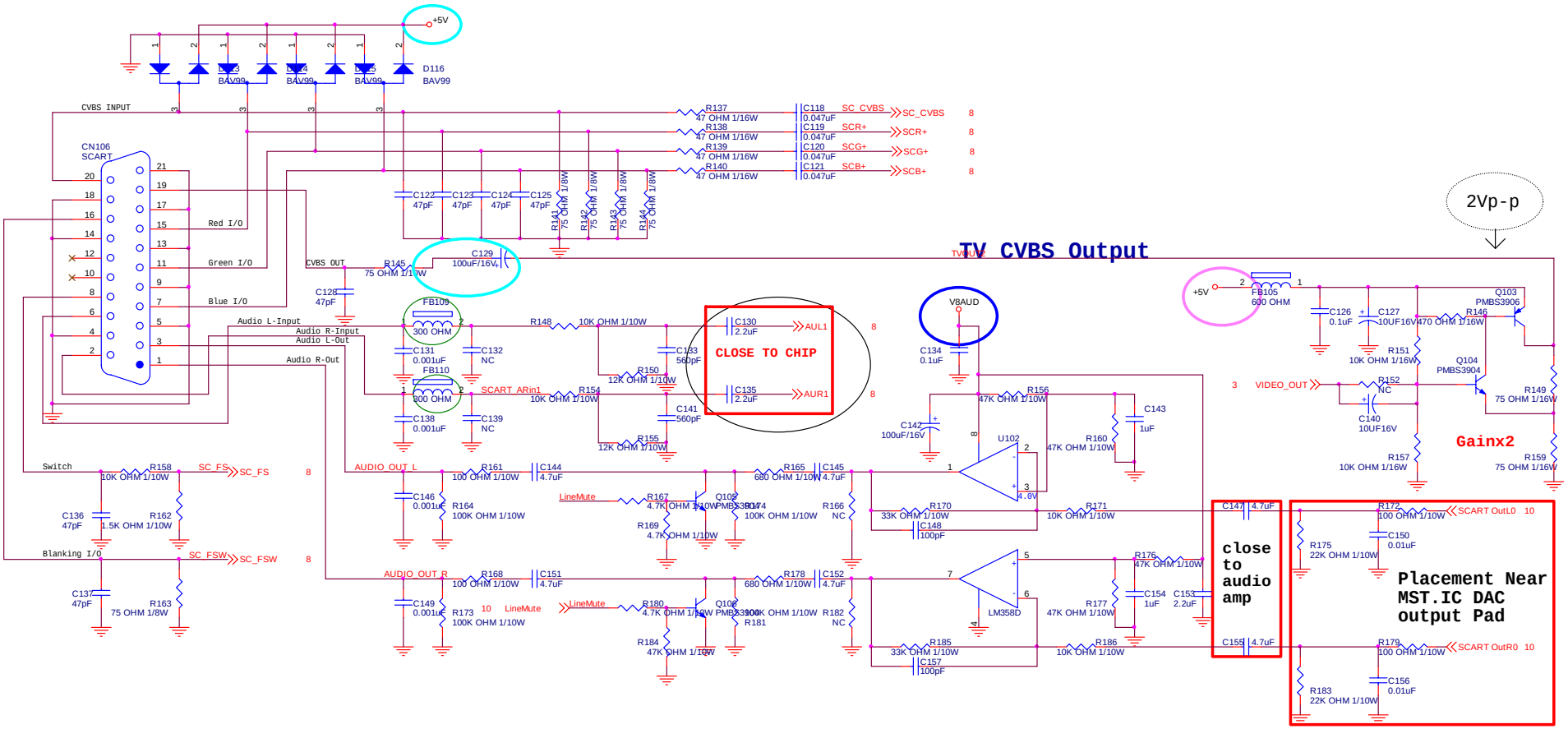
IR board



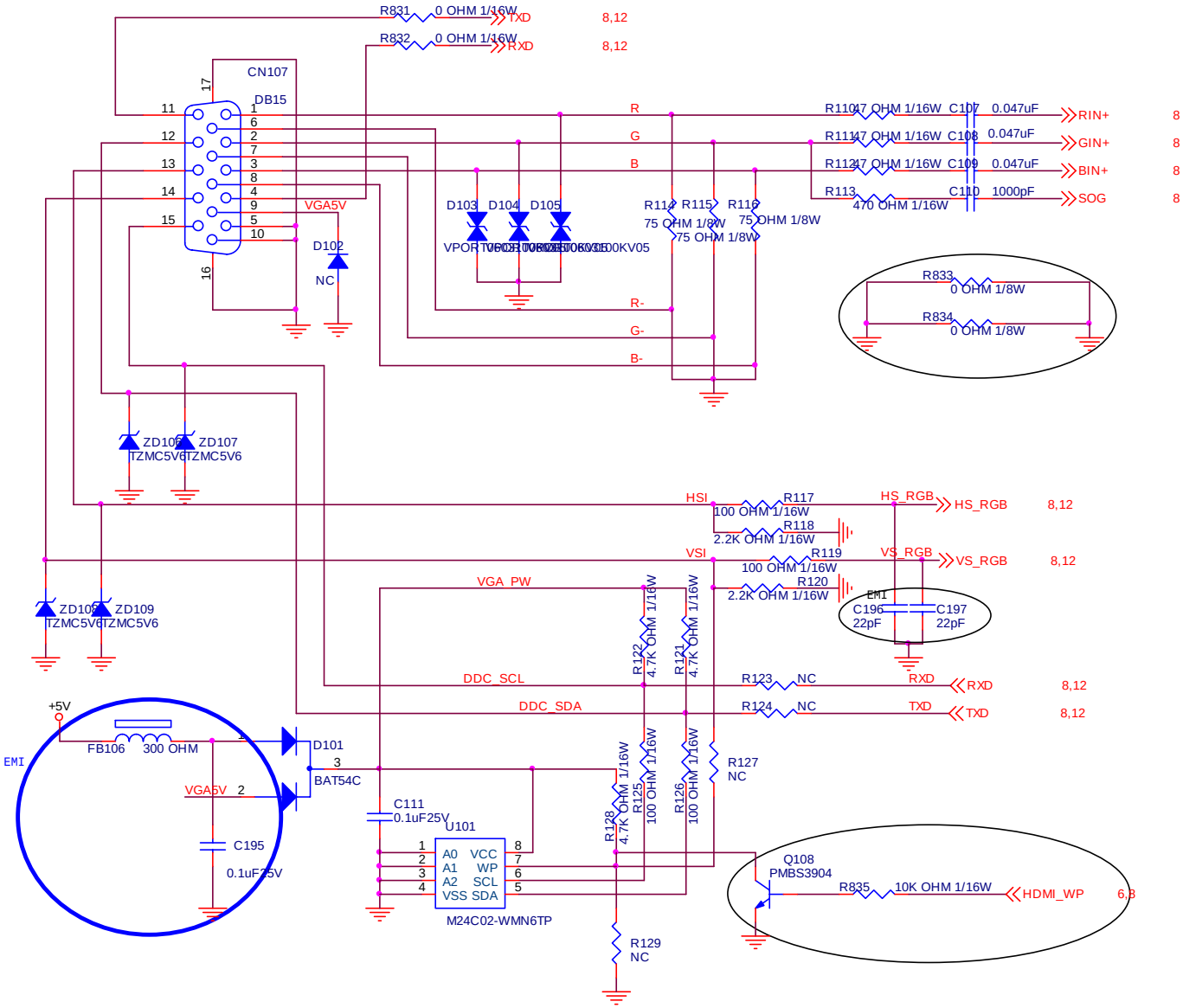
Main Board



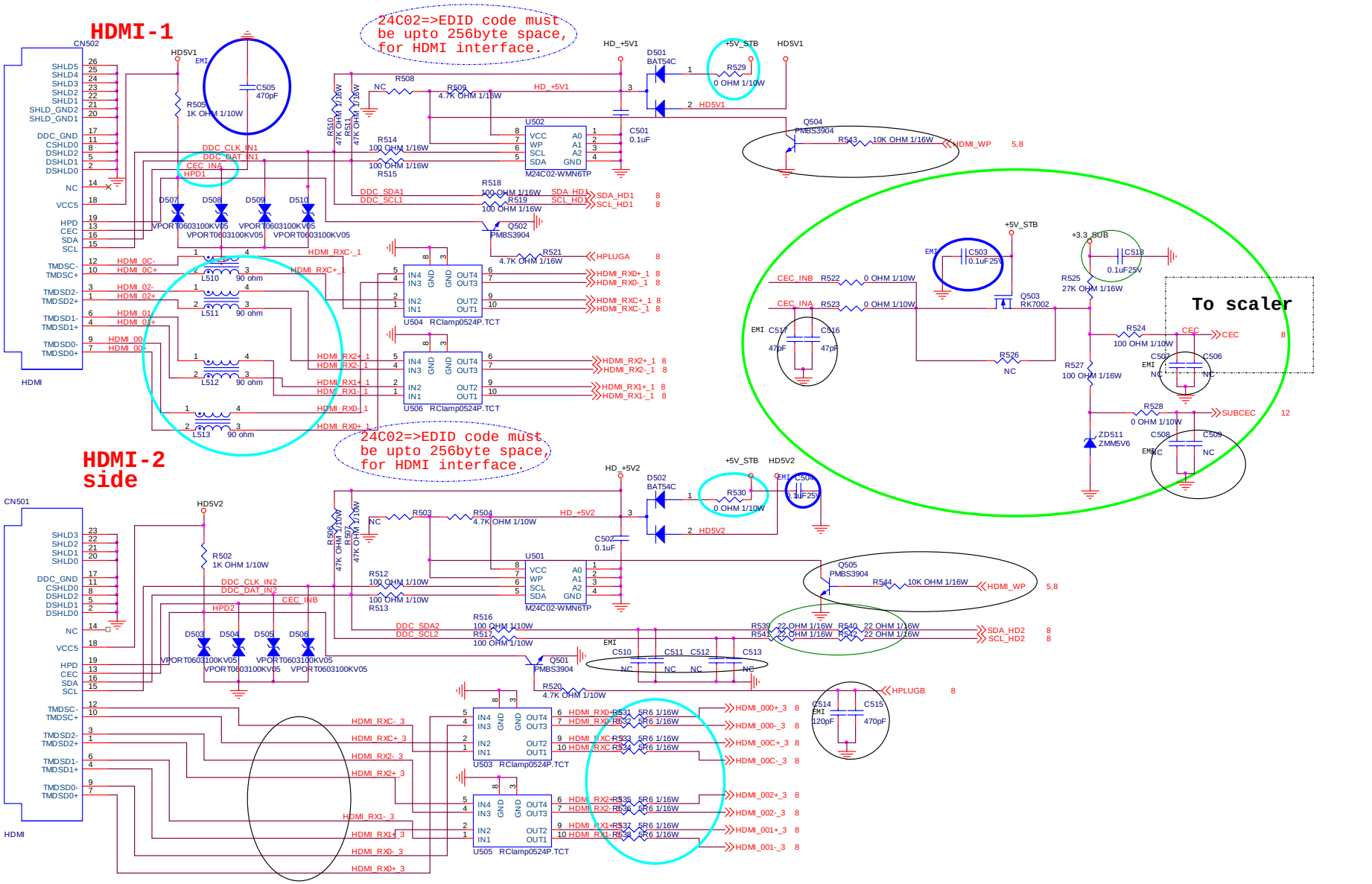
T P V (Top Victory Electronics Co., Ltd.)		OEM MODEL	Acer AT1930/2230	Size	A3
延 隔 瓜 鋼 股		TPV MODEL		Rev	1.0
Key Component	03 Video Input	PCB NAME	715T2849-1	稱 峯	<稱峯>
Date	Tuesday, July 22, 2008	Sheet	3 of 12		



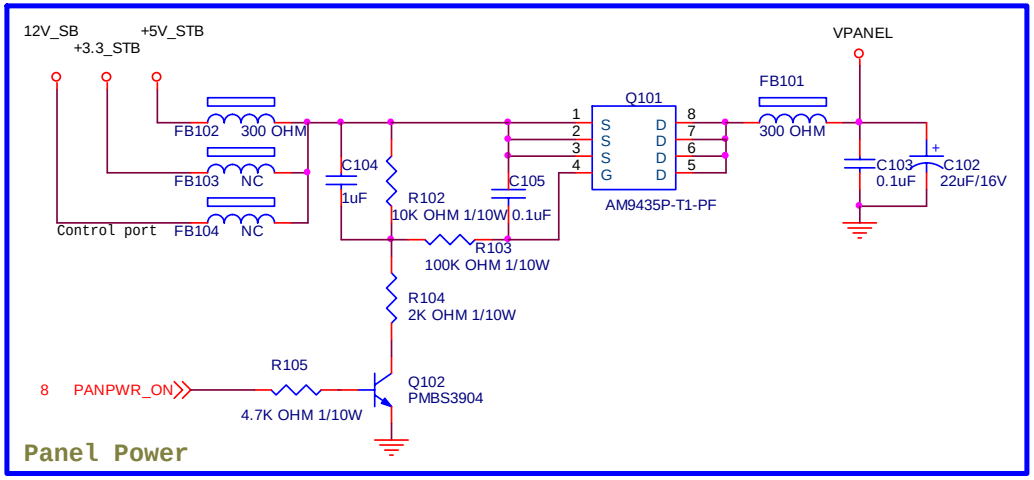
T P V （Top Victory Electronics Co . , Ltd. ）		OEM MODEL	Acer AT1930/2230	Size	A3
話 簡 瓜 損 股		TPV MODEL		Rev	1.0
Key Component	04 SCART & YPbPr Input	PCB NAME	715T2849-1	称 爹	<称爹>
Date	Tuesday, July 22, 2008	Sheet	4 of 12		

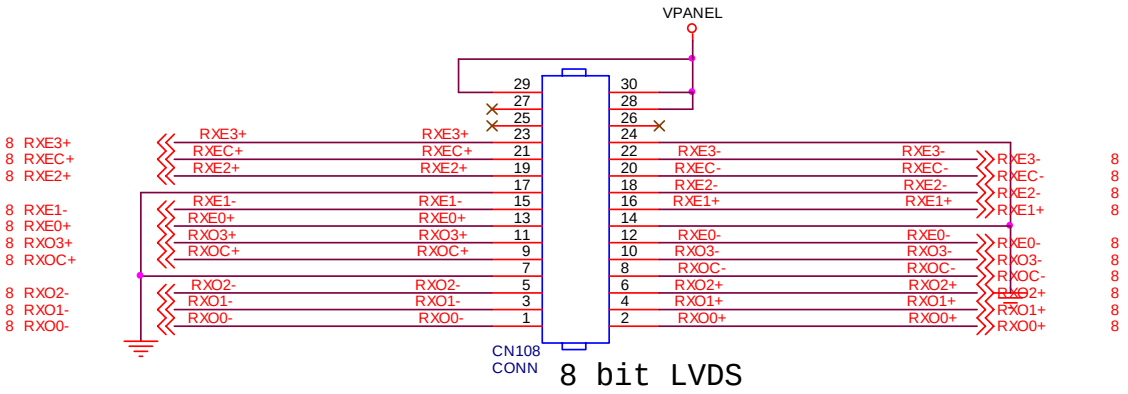


T P V （Top Victory Electronics Co.， Ltd.）		OEM MODEL	AT1930/2230	Size	A4
結 隔 瓜 綱 腹		TPV MODEL		Rev	1.0
Key Component	05 VGA	PCB NAME	715T2849-1	称爹	<称爹>
Date	Tuesday，July 22, 2008	Sheet	5 of 12		

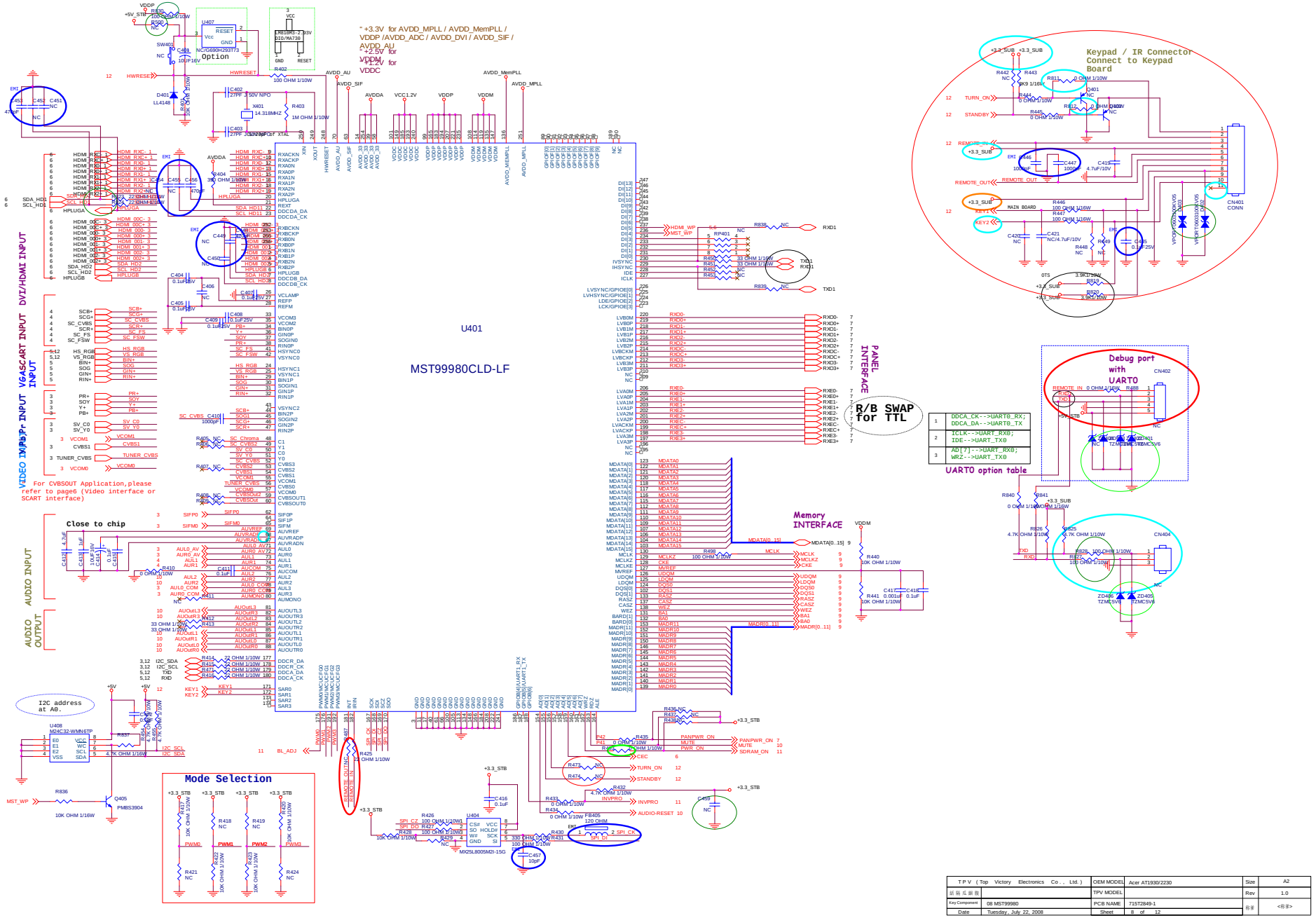


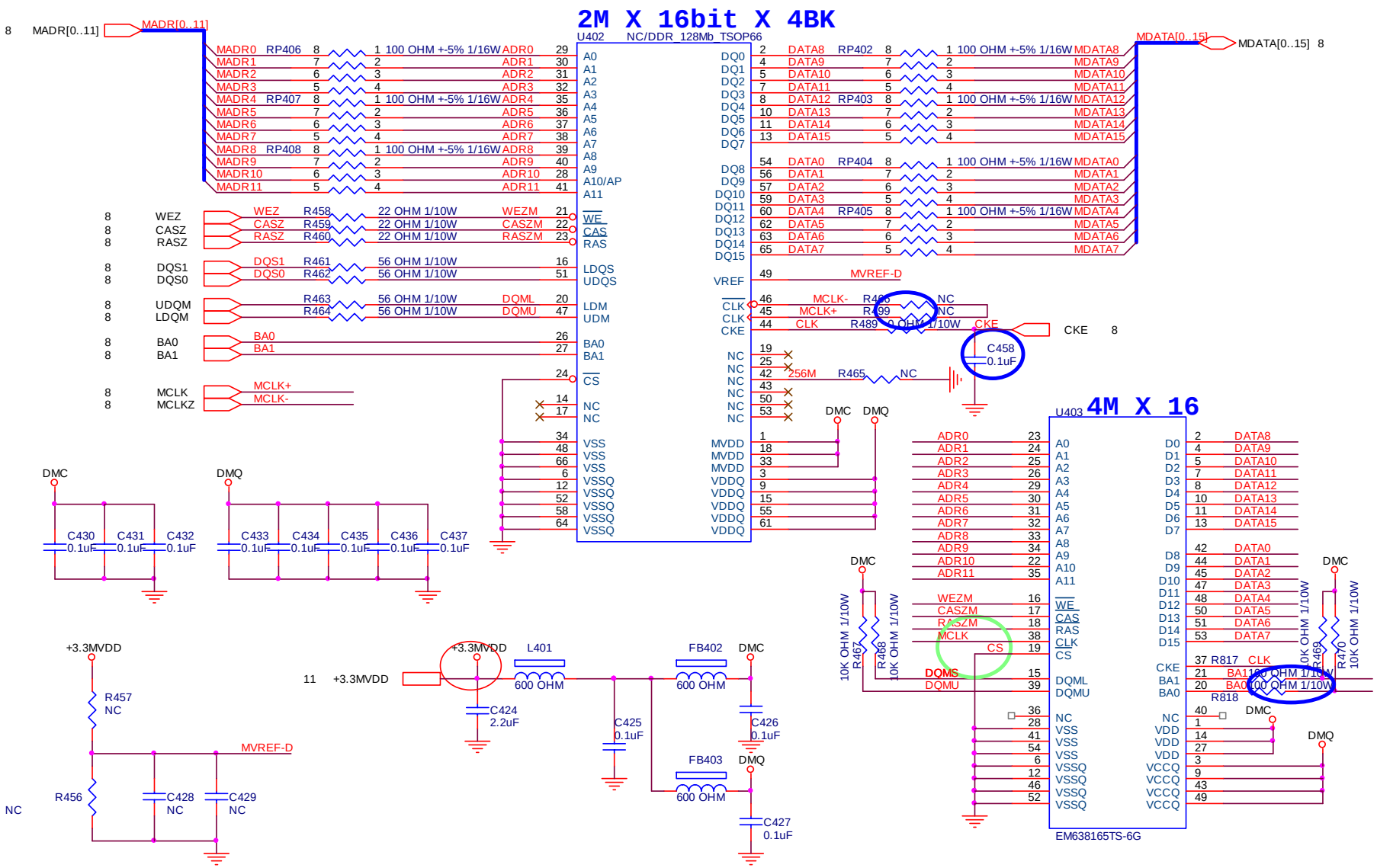
T P V （Top Victory Electronics Co., Ltd.）		OEM MODEL	Acer AT1930/2230	Size	A3
話 隔 瓜 鍋 腹		TPV MODEL		Rev	1.0
Key Component	06 HDMI Input	PCB NAME	715T2849-1	稱 爹	<稱爹>
Date	Tuesday, July 22, 2008	Sheet	6 of 12		



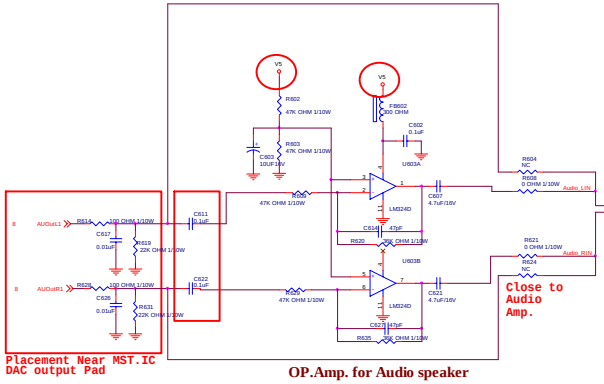


T P V （Top Victory Electronics Co . , Ltd. ）		OEM MODEL	Acer AT1930/2230	Size	A4
結 隔 瓜 網 腹		TPV MODEL		Rev	1.0
Key Component	07 Panel I/F	PCB NAME	715T2849-1	称爹	<称爹>
Date	Tuesday, July 22, 2008	Sheet	7 of 12		

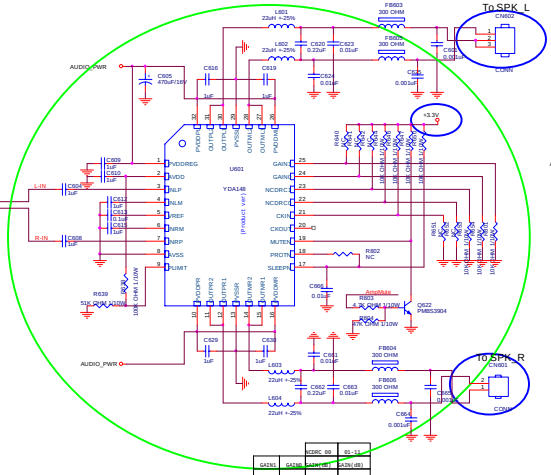

U401
MST99980CLD-LF
" +3.3V for AVDD_MPLL / AVDD_MemPLL / VDDP /AVDD_ADC / AVDD_DVI / AVDD_SIF / AVDD_AU
+2.5V for VDDM
+1.2V for VDDC
DVI/HDMI INPUT
VGA/SCART INPUT
CVBS INPUT
VIDEO INPUT
AUDIO INPUT
AUDIO OUTPUT
PANEL INTERFACE
Close to chip
Memory INTERFACE
R/B SWAP for TTL
Keypad / IR Connector
Connect to Keypad Board
Debug port with UART0
UART0 option table
1 DDCA_CK-->UART0_RX; DDCA_DA-->UART0_TX
2 IICK-->UART_RX0; IIDE-->UART_TX0
3 AD[7]-->UART_RX0; WRZ-->UART_TX0
For CVBSOUT Application,please refer to page6 (Video interface or SCART interface)
I2C address at A0.
Mode Selection
Option
T.P.V. (Top Victory Electronics Co., Ltd.)
OEM MODEL Acer AT1930/2230
TPV MODEL
PCB NAME 715T2849-1
Key Component 08 MST99980
Date Tuesday, July 22, 2008
Size A2
Rev 1.0
Sheet 8 of 12



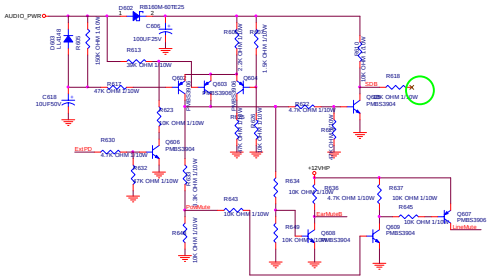
T P V (Top Victory Electronics Co . , Ltd.)		OEM MODEL	Acer AT1930/2230	Size	A4
結 隔 瓜 錮 腹		TPV MODEL		Rev	1.0
Key Component	09 DDR & SDRAM	PCB NAME	715T2849-1	称爹	<称爹>
Date	Tuesday , July 22, 2008	Sheet	9 of 12		

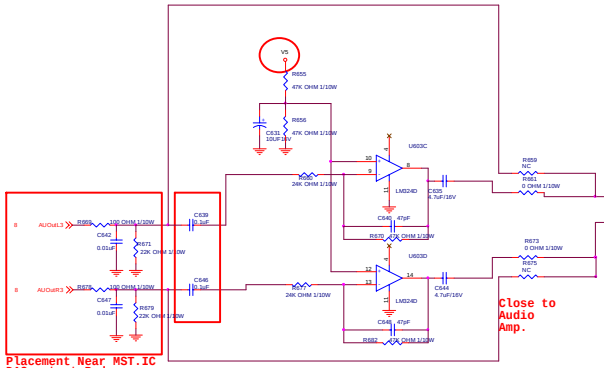


OP.Amp. for Audio speaker

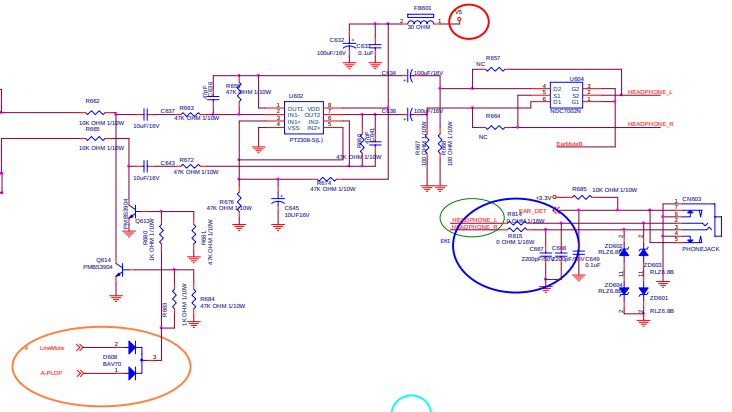


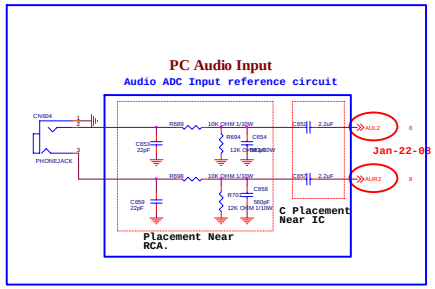
GA3(1)	GA2(0)	GAIN(dB)	GAIN (dB)
0	0	22	34
0	1	28	40
1	0	34	46
1	1	16	28

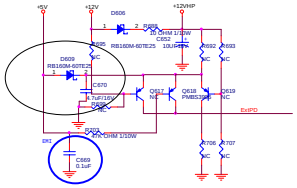


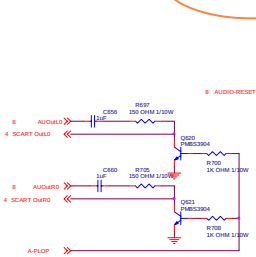


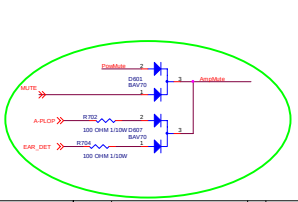
OP.Amp. for Audio Earphone



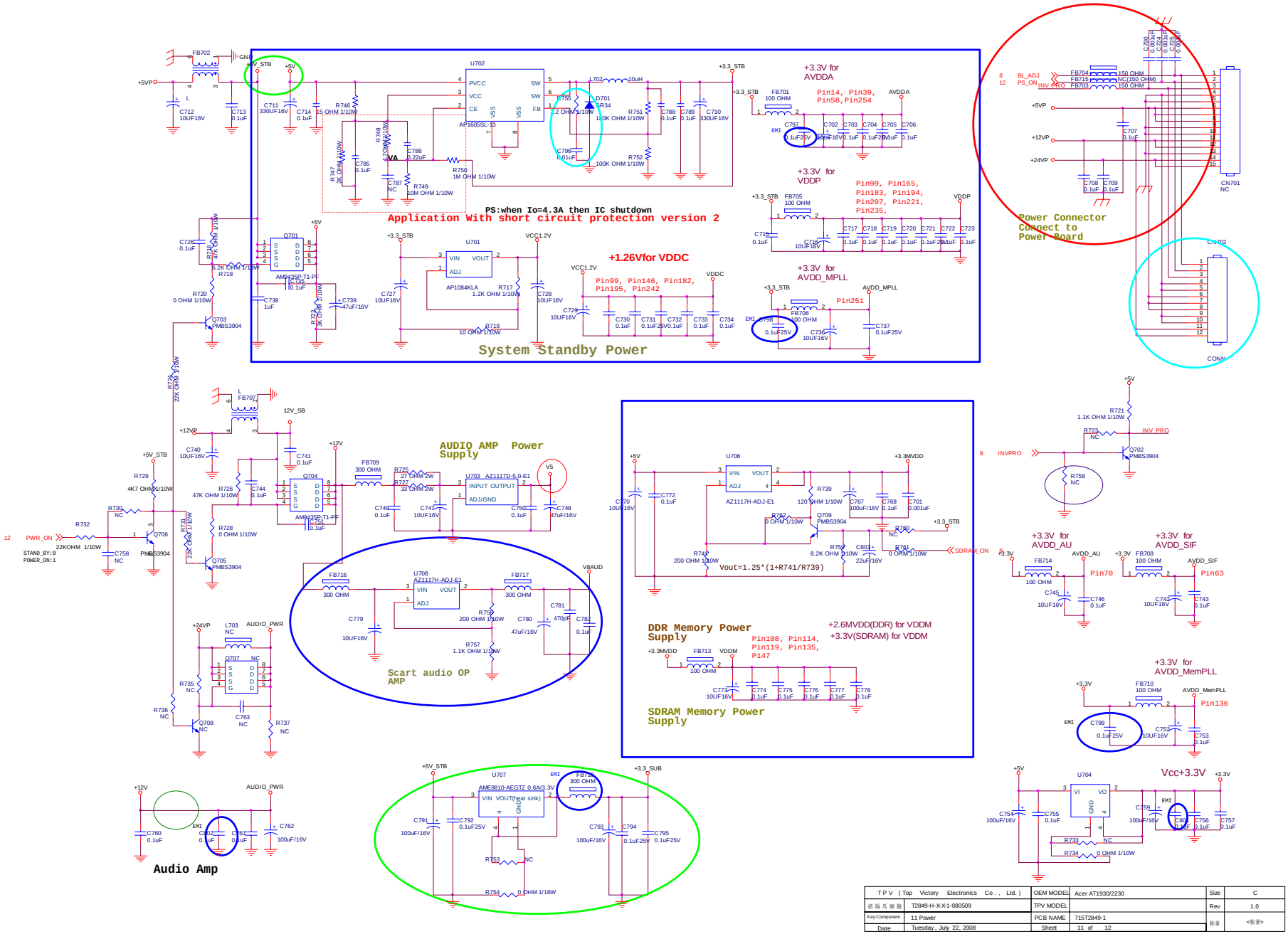




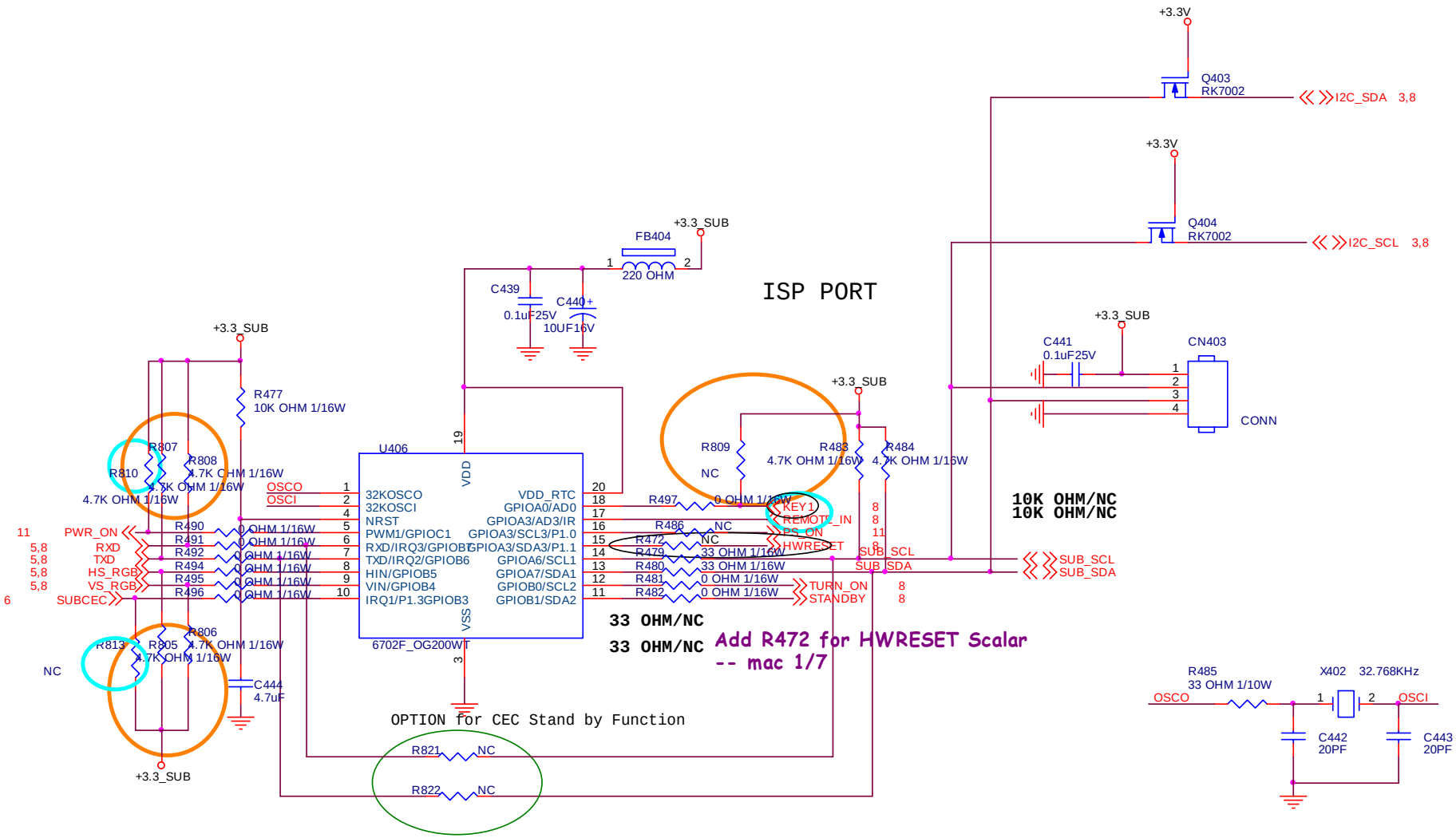




T P V (Top Victory Electronics Co., Ltd.)	OEM MODEL	Acer AT1630/2230	Size: Custom
	TPV MODEL		Rev: 1.0
Key Component: 10 Audio Amp.& PC Audio Input	PCB NAME	715T2949-1	
Date: Tuesday, July 22, 2008	Sheet: 10 of 12		

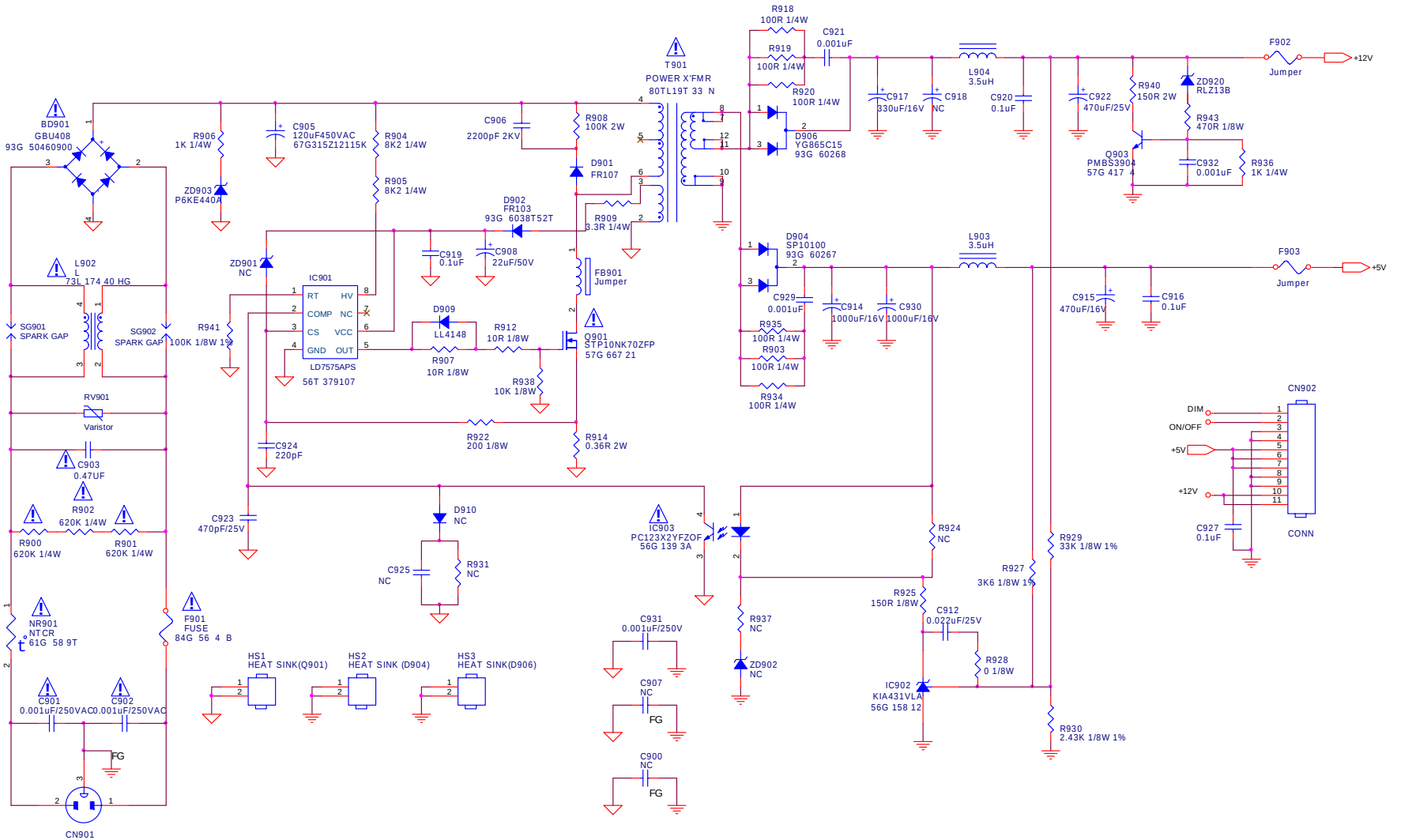


T P V (Top Victory Electronics Co., Ltd.)		OEM MODEL	Acer AT1930/2230	Size C
竑陽瓜 旗股	T2849-H-X-X-1-080509	TPV MODEL		Rev 1.0
Key Component	11 Power	PCB NAME	715T2849-1	件多 <件多>
Date	Tuesday, July 22, 2008	Sheet	11 of 12	



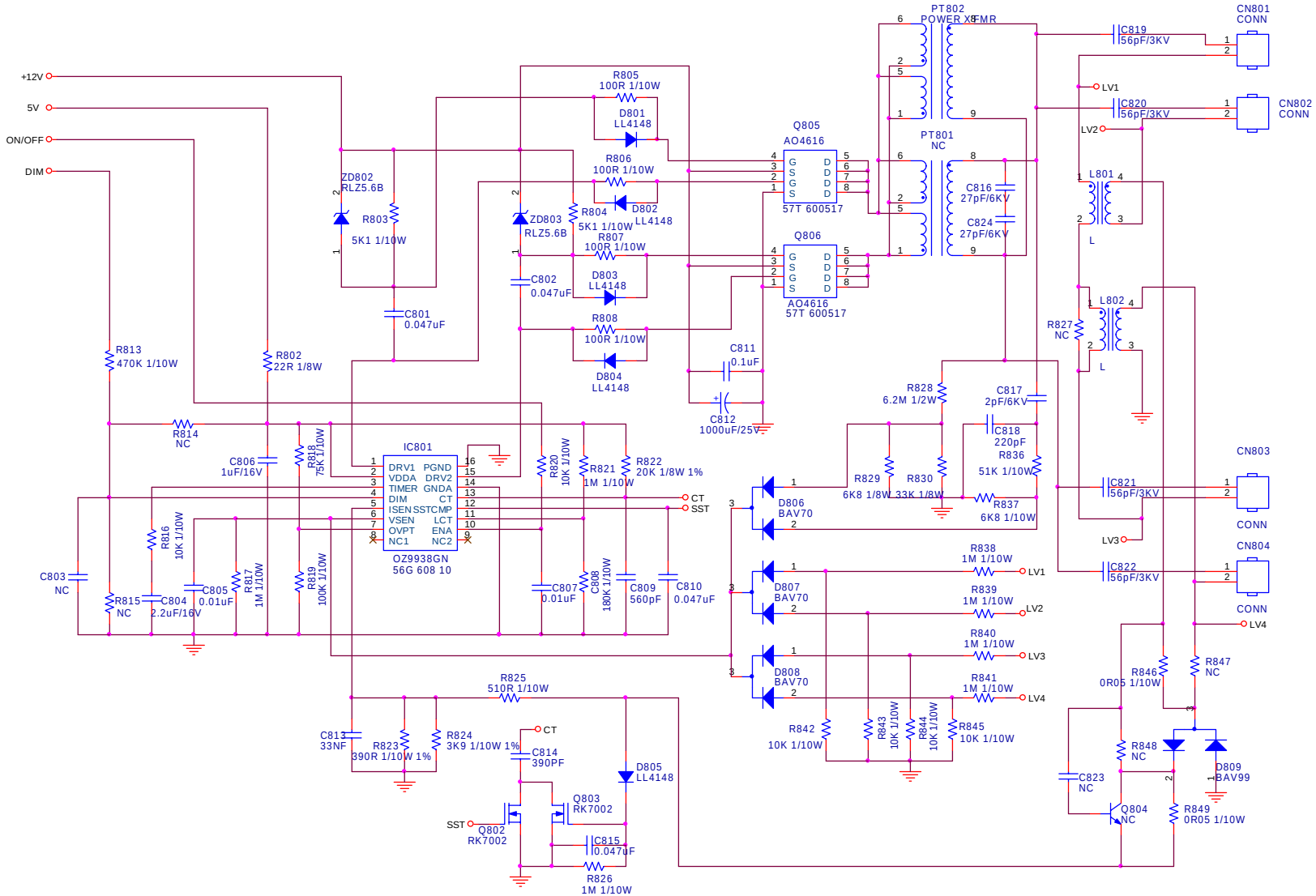
T P V （Top Victory Electronics Co., Ltd.）		OEM MODEL	Acer AT1930/2230	Size	A4
結 隔 瓜 網 腹		TPV MODEL		Rev	1.0
Key Component	12 Sub MCU	PCB NAME	715T2849-1	称爹	<称爹>
Date	Tuesday, July 22, 2008	Sheet	12 of 12		

Power board



MODE	ZD920	R929	T901	C917	C918	C914	C930	D906	C905			
ATV(12V)	93G 39S 40 T RLZ13B ROHM	61G0805330 2F 33K 1/8W 1%	80TL19T 33 N	67T 2043313KT	NC	67G215S1023KV	67G215S1023KV	93G 60268 YG865C15RSC	067G315Z12115K			
DTV(16V)	93G 39S 44 T RLZ18B	61G0805430 2F 43K 1/8W 1%	80TL22T 5 L	67G215S1024KV	67G215S1024KV	NC	67T 2046812KT	93G 64 53 F YG906C2RSC	067G 41Z15115K			

T P V (Top Victory Electronics Co . , Ltd.)		OEM MODEL		Size	Custom
結 隔 瓜 損 腹	T2783-1-3-X-3-080409	TPV MODEL		Rev	K
Key Component	02.POWER	PCB NAME	715T2783-1-3	称 峯	ODM MODEL
Date	Tuesday , July 22, 2008	Sheet	2 of 3		



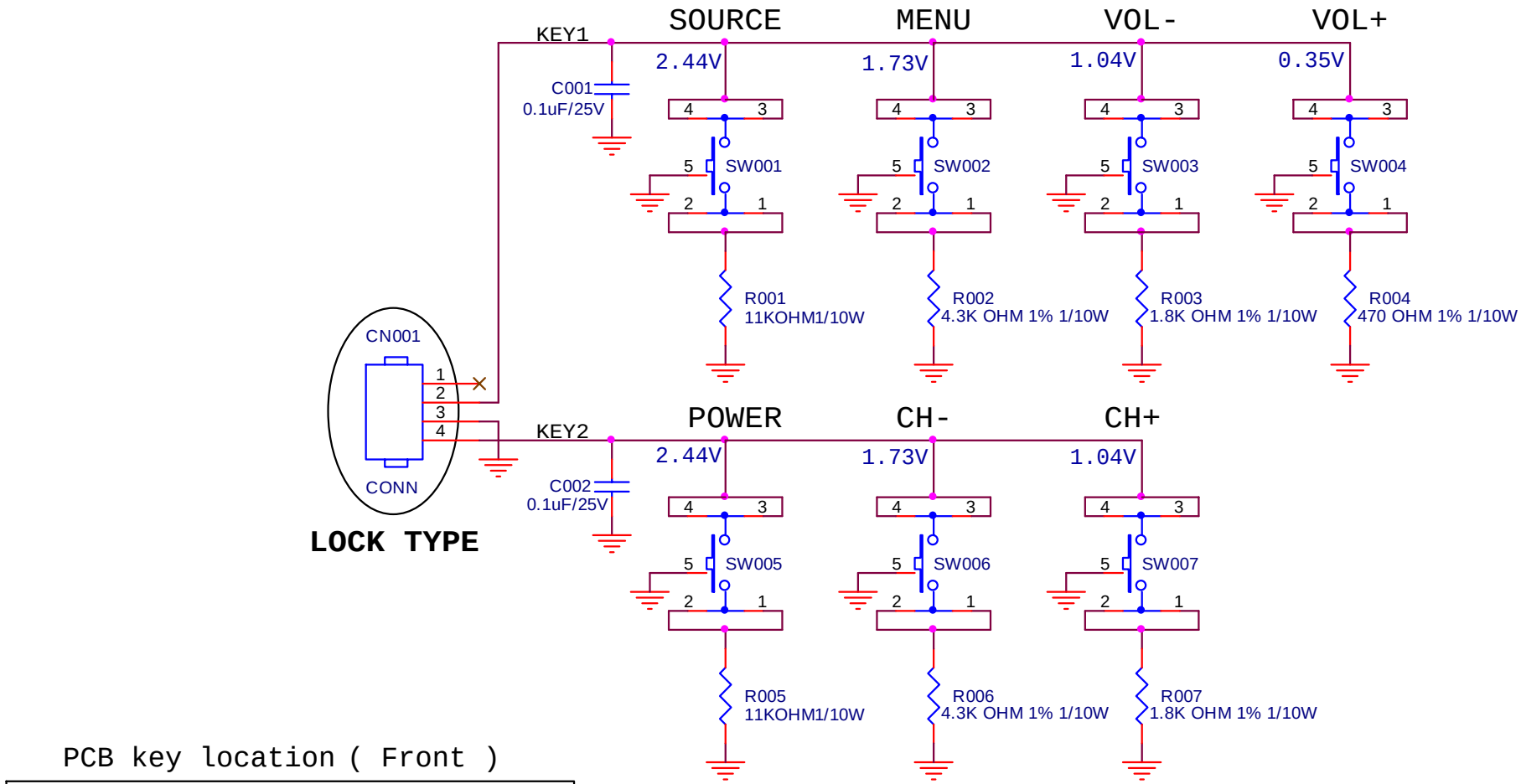
MODE	PT801	PT802	C819,C820,C821,C822	C816,C824	R824
ATV	22NC	19 NC	065G 3J5606ET	065G 3J2706ET	061G0603390 1F
DTV	80GL20T 33 DN		065G 3J6806ET	065G 3J2206ET	061G0603620 1F

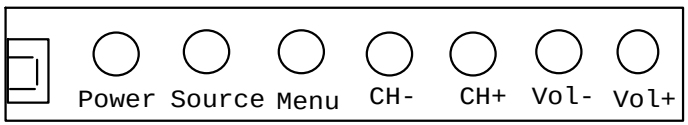
T P V (Top Victory Electronics Co., Ltd.)		OEM MODEL		Size	B
結隔瓜綢腹	T2783-1-3-X-3-080409	TPV MODEL		Rev	K
Key Component	03.INVERTER	PCB NAME	715T2783-1-3	称爹	ODM MODEL
Date	Wednesday, April 09, 2008	Sheet	3 of 3		

Key board

NOTE

Pull up R = 3.9K ohm to 3.3V



LOCK TYPE

PCB key location (Front)